FE333
SIDE SCAN

Diagram No. 1215-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. HE-10-12-89

Registery No. FE-333SS

LOCALITY

State New Jersey

General Locality Atlantic Ocean

Sublocality Offshore Bradley Beach to Sea Girt

1989

CHIEF OF PARTY
LCDR S.R. Iwamoto

LIBRARY & ARCHIVES

DATE May 15, 1990

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

FE333
SIDE SCAN

GP
CHT
12324A
12326
12323
12200
12003
13006

CHARTOG SIGN OFF ON FORM IN BACK

NOAA FORM 77-28 (11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-333SS

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

HE 10-12-89

State New Jersey

General locality Atlantic Ocean

Locality Offshore Bradley Beach to Sea Girt

Scale 1:10,000 Date of survey August 17-24, 1989

Instructions dated March 22, 1989 Project No. OPR-C147-HE

Vessel NOAA Ship HECK S-591

Chief of party LCDR Stanley R. Iwamoto, NOAA

Surveyed by LT Grady H. Tuell, LTJG Dana Wilkes, ENS Harrie W. Bonnah, ENS Lee D. Weiner, ST Mark Sramek

Soundings taken by echo sounder, ~~hand lead, pole~~ DSF 6000 echosounder, pneumofathometer, leadline

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Verification by: James S. Green Automated plot by PMC Xynetics Plotter

Evaluation by: James S. Green

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: All times are UTC. Revisions and marginal notes in ink were generated during office processing. All separates are filed with the hydrographic data, as a result page numbering may be interrupted or non-sequential.

AWOIS/SURF MSM 5/21/90

KWW 5-23-90

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

U.S. GOVERNMENT PRINTING OFFICE: 1986 - 652-007/41215

TABLE OF CONTENTS

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-333SS
FIELD NUMBER HE-10-12-89
NEW JERSEY
ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH TO SEA GIRT
Scale 1:10000
NOAA SHIP HECK S-591
LCDR Stanley R. Iwamoto, CMDG

A. PROJECT DESCRIPTION

A1. Project Authorization

This survey was conducted in accordance with Hydrographic Project Instructions OPR-C147-HE, Offshore New Jersey Coast, dated June 20, 1989.

A2. Project Purpose

In 1988, the NOAA Ship WHITING conducted basic hydrographic surveys and completed 200 percent side scan sonar coverage of the project area. Per instructions, WHITING did not investigate or resolve assigned items or new contacts at that time. The purpose of this project was to provide rapid resolution of all items noted for additional investigation.

B. PROJECT OVERVIEW

B1. General

This report includes the results of all contact investigations performed in order to resolve items originally identified by WHITING in survey H-10290. Survey H-10290 was reviewed by personnel at the Pacific Hydrographic Section (N/CG245). Items to be addressed by HECK were specified in a memorandum from RADM S. R. Petersen, to CAPT C. Andreasen, dated March 22, 1989. This memorandum was forwarded to HECK as an attachment to the Project Instructions. All items listed in the memorandum were resolved by HECK during this survey.

This Descriptive Report does not follow the format specified in the Hydrographic Manual. The format used was agreed upon during meetings held between personnel from the HECK, RUDE, WHITING and the Atlantic Hydrographic section in January and February of 1989.

Horizontal control recovery and installation of navigation units began on June 27, 1989. Hydrographic survey operations began on August 17, 1989, and continued until August 24, 1989.

B2. METHODOLOGY

This survey was conducted according to procedures dictated in the Hydrographic Manual Fourth Edition; the Field Procedures Manual for Hydrographic Surveying; the Side Scan Sonar Manual; and the Hydrographic Guidelines. ✓

Survey data acquisition and processing were accomplished utilizing the HDAPS system and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. The specific survey instrumentation utilized is discussed in Sections F through H of this text. ✓

HECK chose to set up the HDAPS survey project parameters exactly as the WHITING had done. This decision allowed the HECK to survey in the same MTM coordinate system as WHITING. ✓

The standard field survey procedure was to navigate to the coordinates provided by WHITING and to acquire fifty meter range scale imagery over the reported position of the contact. This imagery was compared against the photocopies of the 100 meter range scale images which had been provided as part of the project package. The 50 meter range scale images were obtained in order to provide a higher resolution view of the contact before making a decision as to the proper technique for resolving the item. The imagery was also used to refine the coordinates of the contact before conducting further work. ✓

Contacts fell into one of three categories: diver investigation required for resolution; hydrographic development required for resolution; or insignificant contact requiring no further work. Generally, HECK chose to dive on any discrete point contact which appeared to be wreckage, localized rock outcrops, or small dredge spoils. Any broad shoal areas were resolved by hydrographic development. ✓

Each contact was addressed individually and is discussed in section K of this text. ✓

C. AREA SURVEYED

This survey lies along the New Jersey coast between Bradley Beach and Sea Girt. The offshore limit of the survey is approximately nine miles east of the New Jersey coastline. ✓

D. SURVEY VESSELS

All hydrographic and side scan sonar data were collected by the NOAA Ship HECK (EDPN 9140). ✓

A 17 foot Boston Whaler skiff was used for installation and maintenance of MINI-RANGER shore stations and for general utility work. ✓

A 23 foot SISU launch was used as a dive support boat. All diver least depths obtained by leadline or pneumofathometer were measured from this launch. ✓

E. SURVEY SHEETS

All survey sheets submitted in this report were generated using the Preplot Plotter Sheet utility of the Presurvey menu of the NAVISOFT 300 software on the HDAPS system. A Brunning 824 CS Plotter (S/N 15237) was used as the plotting device. All sheets are Modified Transverse Mercator projections and are plotted on the North American Datum of 1983 (NAD 83). The smooth sheets are on the polyconic projection plotted by the Pacific Hydrographic Sections Xynetics plotter.
Two 1:10000 field survey sheets are submitted in this survey. Additionally, three 1:5000 scale hydrographic development smooth sheets are submitted. The 1:5000 sheets are unconventionally numbered. All data shown on these sheets were originally collected on the 1:10000 scale survey. Each sheet is briefly described in the following text. See APPENDIX V, PROJECT and PLOTTER SHEET PARAMETERS, for the technical specifications on each sheet. (filed with the survey records)

E1. HE-10-12-89W

This sheet is a 1:10000 plot skewed 270°. The sheet covers the western portion of the survey. Data acquired on this sheet are submitted on raw data tape 22910. Smooth data tape 22920 is also submitted. ✓

Two copies of HE-10-12-89W are submitted:
- 1 field contact swath/trackplot on mylar
- 1 smooth contact swathplot on mylar

E2. HE-10-12-89E

This sheet is a 1:10000 plot skewed 270°. The sheet covers the eastern portion of the survey. Data acquired on this sheet are written to raw data tape 22910 and to smooth data tape 22920. ✓

One copy of HE-10-12-89E is submitted:
- 1 field contact swathplot on mylar
- 1 smooth contact swathplot on paper

E3. HE-5-12-89A

This sheet is a 1:5000 plot oriented conventionally and is centered on contacts 26, and 27. The sheet was generated in order to show a reduced scale plot of the line spacing achieved over contact 27 the surveyed area and the difference between the HECK's contact position and the WHITING's contact position. Data acquired on this sheet are submitted on raw data tape 22910 and smooth data tape 22920. ✓

Two copies of HE-5-12-89A are submitted:
1 smooth trackplot on paper
1 smooth depthplot on paper

E4. HE-5-12-89B

This sheet is a 1:5000 plot oriented conventionally and is centered on contacts 2,16,17,23,24 and 30. The sheet was generated in order to show a reduced scale plot of the line spacing achieved over the contacts 2 and 23 and the difference between the HECK's contact position and the WHITING's contact position. Data acquired on this sheet are submitted on raw data tape 22910 and on smooth data tape 22920. ✓

Two copies of HE-5-12-89B is submitted:
1 smooth trackplot on paper
1 smooth depthplot on paper

E5. HE-5-12-89C

This sheet is a 1:5000 plot oriented conventionally and is centered on contacts 10, and 12. The sheet was generated in order to show a reduced scale plot of the line spacing achieved over both contacts and the difference between the HECK's contact position and the WHITING's contact position. Data acquired on this sheet are submitted on raw data tape 22910 and on smooth data tape 22920. ✓

Two copies of HE-5-12-89C are submitted:
1 smooth depthplot on paper
1 smooth trackplot on paper

F SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

F1. Raytheon DSF 6000N Echosounder

All hydrographic soundings for this survey were acquired using a Raytheon DSF echosounder. System performance was checked daily with an Electronic Depth Simulator Instrument (EDSI) provided by AMC's EEB. The daily tests were included as part of each day's raw data records. ✓

Both low and high frequency depths were digitized, but only the high frequency depths were used for survey operations. The automatic gain function was utilized. Operations were conducted using both 40 and 80 range scale settings. The auto phase function was used. The digitizing gate was set at 10 percent of depth. ✓

F2. EG&G Model 260 Side Scan Sonar

The HECK is equipped with an EG&G Model 260 slant corrected Side Scan Sonar recorder (S/N 0011443) and a model 272 dual frequency towfish (S/N 0011591). ✓

Side scan equipment operation involves reeving the towfish cable through a fairlead block over the stern and towing the towfish astern at speeds of 2 to 5 knots. Fish height above the bottom is controlled by a combination of cable scope and ship's speed. The paper speed on the recorder is set manually. The operator must make frequent checks of vessel speed and adjust the paper speed as necessary. This procedure elimiñates paper "speed jumps" caused by spikes in the navigation LOPs and insures that targets are depicted in their correct size and shape. ✓

This project's side scan operations were conducted in accordance with the Side Scan Sonar Manual dated September 1988. Periodic confidence checks were performed by either towing the fish by a previously located contact, or by noting recognizable bottom characteristics at the edges of the sonar range scale in use. The side scan sonar system worked well for the duration of the survey. ✓

F3. Leadline and Pneumofathometer

Due to a failure of the ship's pneumofathometer, two diver determined least depths were measured with a leadline (contacts 26 and 30). The leadline used for measurement was constructed and used in accordance with Hydrographic Manual section AF.1. ✓

The HECK's pneumofathometer is equipped with two precision depth gauges, a 0 - 70 FSW depth gauge and a 0 - 140 FSW gauge. The HECK's pneumofathometer was built and is operated according to procedures specified in Hydrographic Guideline 55. Both gauges were most recently calibrated 26 July 1989. Copies of these calibrations are provided in APPENDIX I.H. (filed with the survey records)

A pneumofathometer system check was conducted on 24 August 1989. This check showed that the system was operating within specified tolerances. The results of this check are included in Appendix I.H. (filed with the survey records)

Pneumofathometer least depths were obtained on contacts 16,17, and 24.

G CORRECTIONS TO ECHO SOUNDINGS

G1. Velocity Correctors

The following table shows the dates and locations that velocity correction data were obtained by making direct readings of sound velocity using the ODOM Digibar sound velocimeter:

DATE	LOCATION
7/27/89 (DOY 208)	40° 22' 30"N ; 73° 54' 48"W
8/23/89 (DOY 235)	40° 08' 30"N ; 73° 54' 00"W (used for this survey)

The velocity cast data were reduced and velocity corrections calculated using program VELOCITY. The computed velocity correctors were then applied online to echosounder depths by entering the correction data into the HDAPS sound velocity table. Reference APPENDIX I.A, VELOCITY CORRECTION DATA, for listings of the cast data and output from the VELOCITY software. HDAPS velocity table listings are also shown in APPENDIX I.A. Velocity correctors were verified by conducting a dual leadline comparison of echosounder and leadline depths on DOY 194. Digital depths agreed with leadline depths within one half foot. Results of the comparison are included in APPENDIX I.C., LEADLINE COMPARISONS. (see survey records for referenced appendices)

G2. Tide Corrections

The tidal datum for this project is mean lower low water. The operating tide station at Sandy Hook, NJ, will serve as control for datum determination. This station was also used for predicted tides. No tide stations were established by the HECK in support of this survey. Verification Third-order levels were conducted at the tide station on June 28, 1989 (DOY 179) and at the end of the project on August 31, 1989 (DOY 243). ✓

All hydrographic and diver determined depths have been corrected for predicted tides. The tidal values were taken from Tide Tables 1989 High and Low Water Predictions, East Coast of North and South America. Correctors for time and height were taken from the project instructions. The predicted tides applied to detached positions on the field sheets were incorrect. See annotations in Section K for corrected values.
Tidal correctors were applied online by entering the appropriate values into the HDAPS predicted tide tables. Three predicted tide tables were used. These tables are included in APPENDIX I.D., HDAPS PREDICTED TIDES TABLES. (filed with the survey records) ✓

A Request for Approved Tides was mailed to Chief, Sea and Water Levels Branch, on October 17, 1989. A copy of this letter is enclosed in Appendix I.E. (filed with the survey records) ✓

G3. Settlement and Squat Correctors

Settlement and squat correctors for the HECK were determined on March 10, 1989 (DOY 69), at Craney Island fuel pier in Norfolk, Virginia. An observer was put ashore with a level instrument, and changes in relative height were measured as the ship passed by the observer while running at various speeds. (Reference APPENDIX I.F, SETTLEMENT AND SQUAT DATA) (filed with the survey records) ✓
Settlement and squat values were applied online to hydrographic soundings by entering the observed values into the HDAPS offset table. A copy of this table is included in APPENDIX I.G, HDAPS OFFSET TABLE. (filed with the survey records)
S & S values were applied to the TRA corrector table for smooth plotting.

G4. Heave, Roll, Pitch Sensor and Correctors

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located amidships near the transducer. The sensor gathers online data which is applied to the soundings in near real time. All data acquired in the echosounder mode have been corrected by applying HIPPY correctors. Except for part of Day 296, data was collected in ride scan mode (no heave correction).

G5. Vessel Draft Corrector

During a February 1988 drydock period, an exact measurement of 19.0 feet was taken from the DSF transducers to a fixed point on each bridge wing of the ship. After refloating the ship, the height above the waterline was determined for this point. The ship's static draft was calculated to be exactly 6.9 feet (2.10 meters).

This draft was applied online to hydrographic soundings by entering the value of 2.1 meters as the high frequency transducer height in the HDARS offset table. See APPENDIX I.G. HDAPS OFFSET TABLE. (filed with the survey records). A draft correction of 6.9 ft was applied to the smooth plotted data.

H. HORIZONTAL CONTROL

H1. Survey Navigation

Vessel survey navigation was accomplished by the range-range method, utilizing the Motorola MINI-RANGER Falcon 484 system. ✓

The MINI-RANGER system is interfaced to the HDAPS system in such a way that only the ranges and signal strengths are recorded; the position computation capability of the Falcon system is not utilized. Vessel position is computed by a least squares predictor/corrector algorithm within the NAVITRONIC NAVISOFT 300 software. ✓

The hydrographer must specify each of three interactive parameters which "tune" the positioning algorithm. The following parameters were entered into the Offset Table :

1) acceleration limit ..... 0.2 meters second $^{-2}$

2) angle limit ..... 0.3 degrees second $^{-1}$ ✓

3) crabbing limit ..... 0.4 degrees

The algorithm simultaneously uses up to four electronic lines of position (LOPs). Additionally, the ship's gyro heading and speed are used to predict (dead reckon) a position. Whenever more than two acceptable LOPs are measured, the position computation is mathematically overdetermined. In order to utilize all available information, a least squares adjusted position is computed. ✓

Three measures of the quality of this adjusted position are: the magnitude of the residuals on each range; the size and orientation of the error ellipse; and the radius of the 95% confidence error circle. HDAPS provides the hydrographer with a continuous graphic display of these data as well as a rough graphic of survey geometry. The required survey navigation positional accuracies are specified in terms of the maximum residual and the error circle radius. These requirements are stated in the Project Instructions. ✓

Field Procedures Manual Memorandum #89-01, dated 08 August 1989, negated the requirement for sextant fixes when HDAPS is routinely operated in the multiple LOP mode and when positional accuracies are within specified tolerances. The HECK routinely conducted surveying operations using four MINI-RANGER LOPs, although occasionally one or more ranges were automatically rejected from the solution due to poor signal strength. At no time during this project did the maximum residual consistently exceed 0.5 mm at the survey scale (5 meters). The 95% confidence error circle radius very rarely exceeded 1.5 mm at the survey scale (15 meters). ✓

A pre-project baseline calibration (BLC) of the MINI-RANGER system was conducted at Fentress Auxiliary Naval Airstrip on January 31, 1989. A mid-season BLC was conducted at Port Jefferson, New York, on May 20, 1989. During these calibrations, the range correctors were determined for each combination of transponder and shipboard R/T and RPU. A minimum acceptable signal strength (MASS) was also determined for each transponder. All data in this survey utilized correctors determined during the Baseline Calibration of May 20, 1989. Reference APPENDIX II.B, * MINI-RANGER BASELINE CALIBRATION DATA, for the results of this calibration. BLC raw data, computations, and graphs are included in Electronic Control Report OPR-B660-HE-89, which is submitted under separate cover. ✓

The range corrector and MASS for each MINI-RANGER code was entered into the HDAPS system using the Pre-Survey C-O Table Utility. This table provides the mechanism by which HDAPS automatically applies the proper range corrector and removes from the position computation those LOPs with signal strengths below MASS. A new C-O Table was generated each time any change was made to the navigation configuration. Reference APPENDIX II.C, * HDAPS C-O TABLES, for the various C-O tables used during this survey. ✓

* filed with the survey records

MINI-RANGER shore station installations were placed directly over Third Order Class I or better geodetic stations. Control station positions were entered into the HDAPS Control Station Tables using the Pre-Survey menu. (See ~~APPENDIX II.A,~~ attached LIST OF HORIZONTAL CONTROL STATIONS). The appropriate MINI-RANGER codes were attached to the station number on this table. Each time the survey navigation configuration was altered, the control station table was modified so that it reflected the correct MINI-RANGER code placement. APPENDIX II.D, DAILY ABSTRACT OF HDAPS TABLES, correlates control stations, MINI-RANGER codes, position numbers and dates of use. (filed with the survey records)

H2. GEODETIC CONTROL

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). All stations were either established or recovered by WHITING. All coordinates were taken from WHITING's control station table. Ambrose Light ECC was the only offshore station used.

I. AUTOMATED DATA PROCESSING

Hydrographic and side scan sonar data acquisition and processing were accomplished using the HDAPS hardware and the most recent version of the Navitronic NAVISOFT 300 software provided to the ship. This software is still under development and some problems do exist:

1) The positioning algorithm occasionally generates a "flyer" which causes the plotter sheet to scroll in an unpredictable manner. HECK personnel tried unsuccessfully to edit these "flyers" in the nightly processing. Therefore, the plotter continued to scroll even in the off-line data processing mode.

2) Coordinates for control stations are altered by the software after they have been entered. This problem is most likely caused by rounding errors in the GP > MTM > GP conversion process. The potential errors are quite small (decimeter). However, the reader must be aware that the error is introduced by the software and that the coordinates were originally entered correctly.

3) Whenever SSS operations are conducted with the ship's course oriented obliquely to the segment, the swathplot is not shown correctly on the field of smooth sheets. This problem is visible on the smooth swathplot (HE-10-12-89W) over contact 27. Because a hydrographic investigation was run over the contact, this problem was not considered serious.

DIGIBAR velocity cast data were processed on the ship's IBM-PC XT using program VELOCITY. ✓

Geodetic computations were performed on the ship's IBM-PC XT using the MTEN ENHANCEMENTS routines which were obtained from the National Geodetic Survey ✓

J. COMPARISON WITH CHARTS AND PRIOR SURVEYS

See Evol Rpt, Sect 6 #7

Hydrographic soundings from this survey were compared with the largest scale chart of the area.

NOS CHART 12326
FIRE ISLAND LIGHT TO SEA GIRT
1:80000
38TH ED 22FEB86 ✓

12324SC
SANDY HOOK TO LITTLE EGG HARBOR
1:40000
~~38~~TH ED 15NOV86
39

This survey was also compared against prior survey:

H-10290 Also FE-221 WD
OFFSHORE NJ COAST, NJ 1978-79
1:10000
1988

The chart and prior survey comparisons were conducted by plotting the position of the contacts directly on the chart or survey. Specific details of the comparisons are discussed in section K of this report, under the item investigation report for each contact. ✓

No dangers to navigation were reported to Coast Guard as a result of this survey. ✓

K. CONTACT INVESTIGATION REPORTS

Ten contacts were investigated during this survey. Each item is discussed individually in the remaining text. Side scan sonar imagery covering each contact is abstracted on the target abstract for the individual contacts. ~~(see appendix IV.)~~* The contact investigation reports are organized in the following manner:

1) Text describing the search area, search technique, and result of investigation

2) MTM to LAT-LONG conversion and tide corrector determination

3) Diver's sketch on contact of contact (if appropriate)

4) Photographic copy of fathometer image at time of detached position ✓

5) Photographic copy of the SSS image obtained by the HECK

6) Photographic copy of the SSS image obtained by the WHITING

7) Dive operations summary (if appropriate)

CONTACT	STATUS	RECOMMENDATIONS
2	HR	SHOAL SOUNDING ON ISOLATED ROCKS, 6~~8~~3 FEET
10	HR	SHOAL SOUNDING ON ISOLATED ROCKS, 7~~4~~2 FEET
12	HR ~~HR~~ DR	SHOAL SOUNDING ON ISOLATED ROCKS, 7~~8~~4 FEET
16	~~HR~~	WRECK~~AGE~~, ~~NOT DANGER~~R, ~~60~~ 58 FT
17	DR	ROCK ~~WRECK~~, ~~NOT DANGER~~, 56 FT ✓
23	HR	REMAIN AS CHARTED (FISH HAVEN)
24	DR	REMAIN AS CHARTED (FISH HAVEN)
26	DR	WRECK ~~REMAIN AS CHARTED~~ 55 FT
27	HR	ROCKS, INSIGNIFICANT
30	DR	REMAIN AS CHARTED (FISH HAVEN)

KEY **HR**-HYDRO RESOLVED **DR**-DIVER RESOLVED

* filed with the survey records

K.1 INVESTIGATION REPORT FOR CONTACT #2

no tides correction

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 5.2 miles east of Spring Lake, NJ
Latitude: 40° 08' 41.433"
Longitude: 73° 54' 24.832"
Reported Depth: 60 feet (H-10290)

SURVEY PROCEDURES:

Positioning:	Falcon Mini Ranger
Side Scan Sonar Search:	DOY: 234
Hydrographic Investigation:	DOY: 236
Contacts:	ONE

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. The SSS image revealed a shoal area, possibly a dumpsite, with no notable descrete peaks. The item was resolved by running a series of development hydrographic sounding lines over the position supplied by the WHITING. Line spacing results are shown on the 1:5000 scale plot HE-5-12-89B. ✓

K.1 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER #2

CONTACT DESCRIPTION: The side scan sonar record reveals that the contact is a rocky shoal area approximately 40 meters long by 15 meters wide. The contact is probably debris dropped by a barge or dredge. The position of least depth is at fix 1281.2F. ✓

LEAST DEPTH DETERMINATION: The least depth was determined by echosounder.

Date of measurement: 24 August 1989 (DOY 236)
Time of measurement: 15:27 GMT

Echosounder depth:	58.4	
Velocity corrector:	2.2	
Draft corrector:	6.9	
Predicted tidal corrector:	~~-1.6~~	-3.5
Heave	0.4	
Least Depth :	~~66.3~~	69.4 predicted tides
		63.0 observed tides (Pier # 1287)

POSITION DETERMINATION:

Fix number:	1281.2F	1287
Number of LOPs:	4	
ECR:	*	
MAX RES:	1.5	
Easting:	28686.9	28688.6
Northing:	8674.0	8671.0
Latitude:	40° 08' 41.203" N	40° 08' 41.100" N
Longitude:	73° 54' 24.237" W	73° 54' 24.160" W

RECOMMENDATIONS: Contact 2 is located on prior survey H-10290 as a shoal sounding of 60 feet. Surrounding depths range from 62 feet to 70 feet. The contact was listed in the WHITING's contact abstract as "DUMPSITE" and was recommended for echosounder development or diver least depth. The HECK resolved the contact by echosounder development. ✓

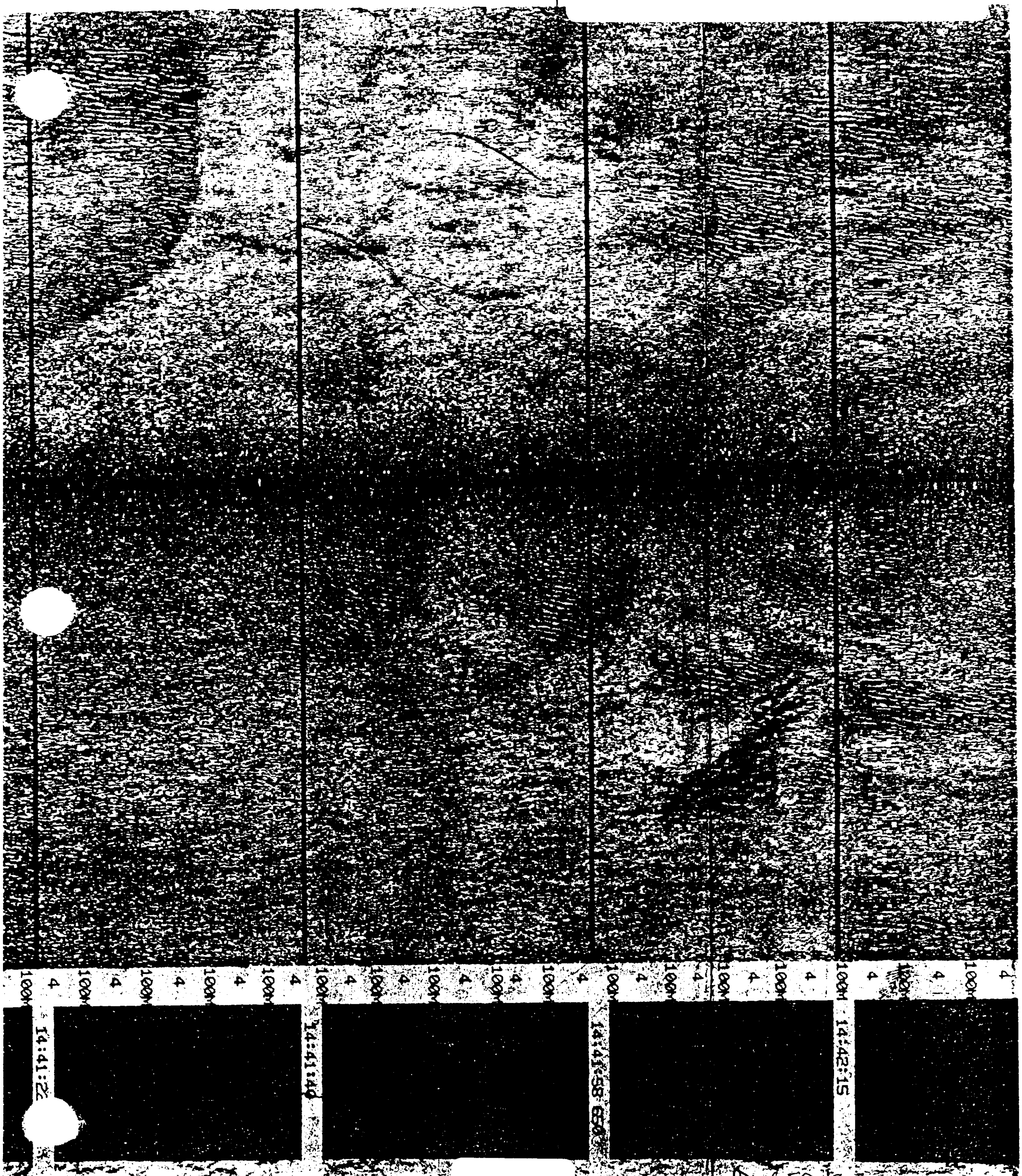
The contact lies approximately 5.2 miles offshore and is on the 60 foot depth contour. The contact is not charted. ✓

The contact should be charted at the position determined in this survey as a shoal sounding on isolated rocks, not dangerous to surface navigation, with a known depth of ~~66~~ 63 feet. Concur

The obstruction covered 60 feet on H-10290 is superseded by the 63-foot sounding from this survey (Reg # 1287)

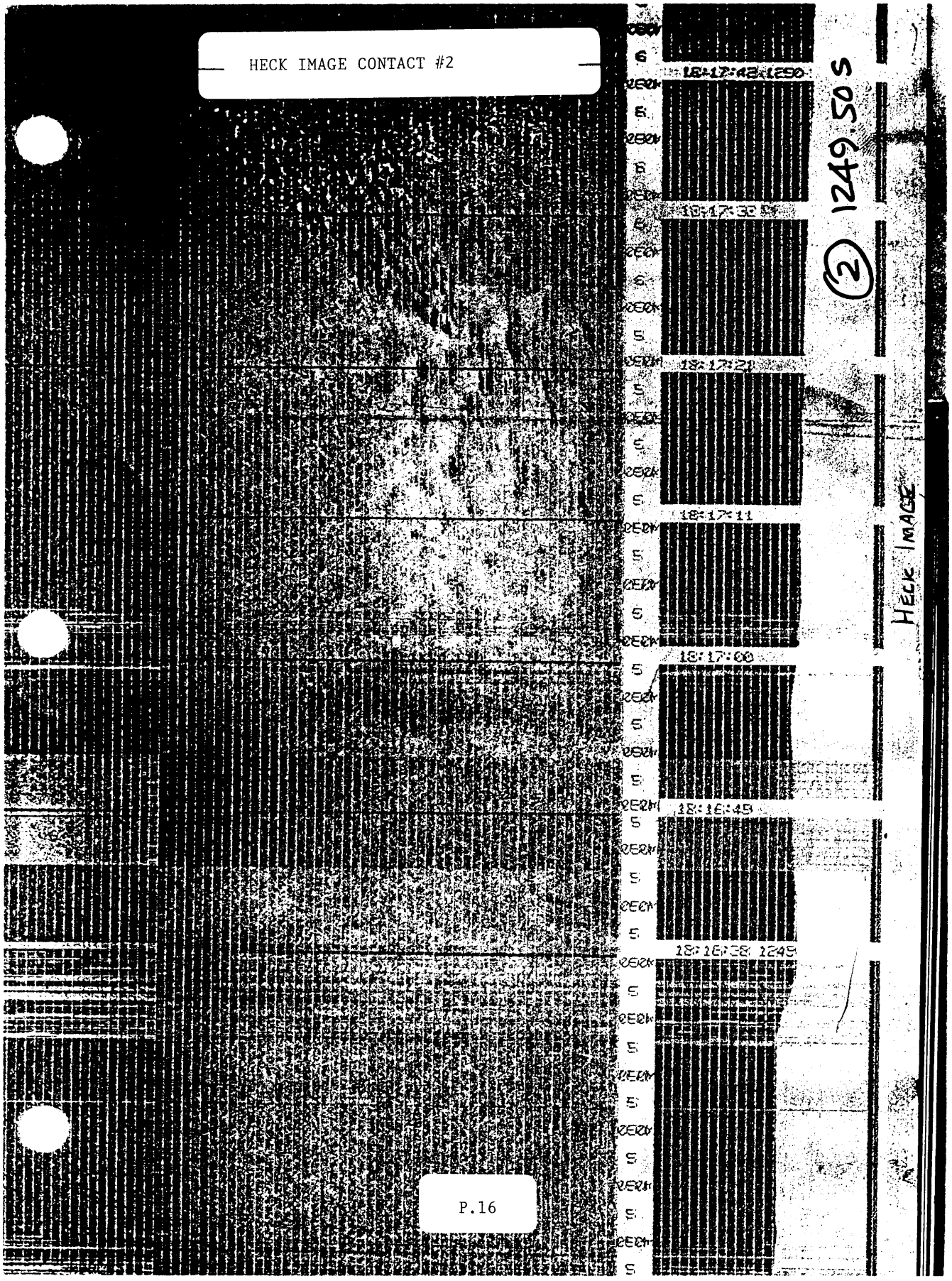
See sheet 1 of 4

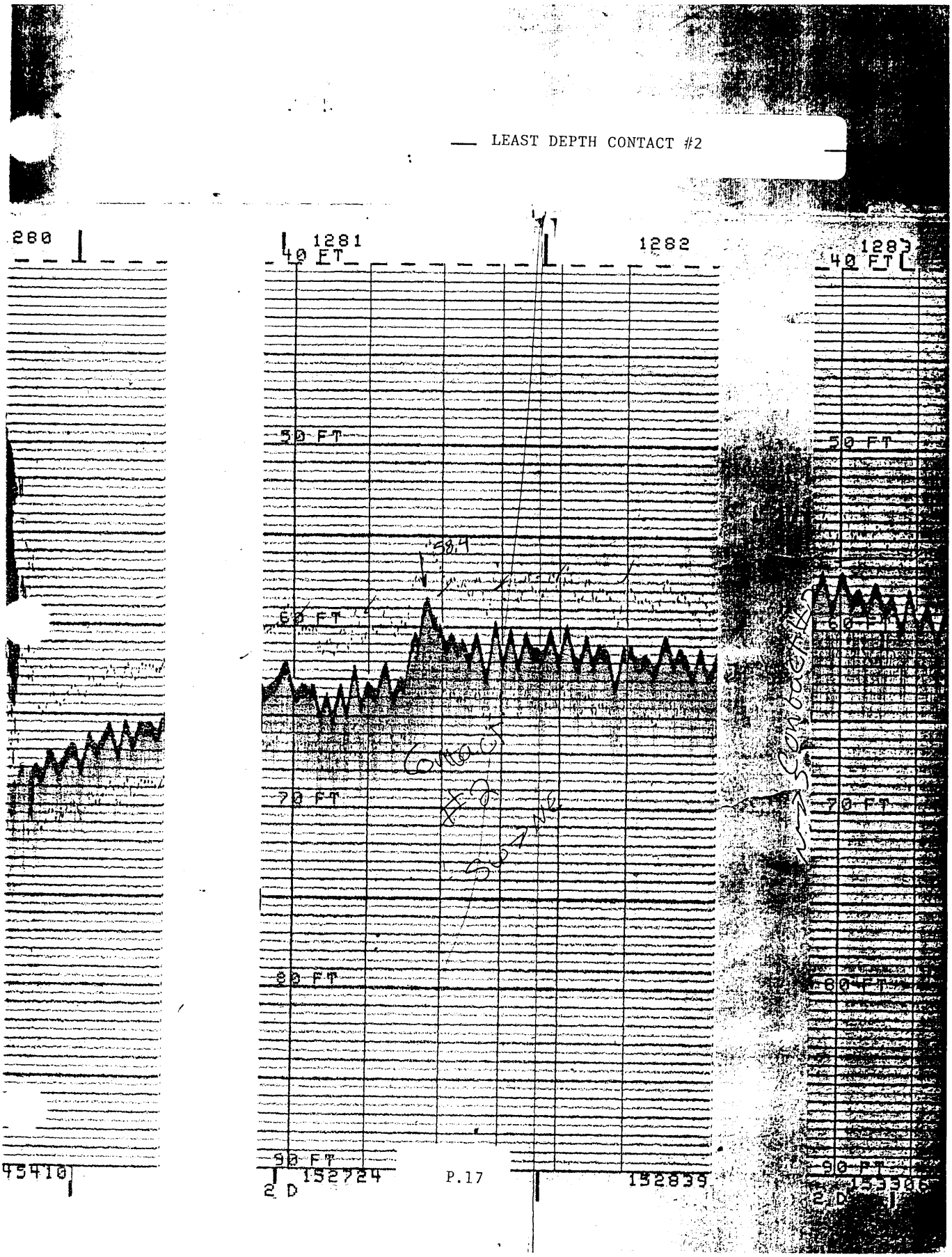
Contact #2 5.9' Dump WHITING IMAGE CONTACT #2



650.18

Same As 715.75


HECK IMAGE CONTACT #2
18:17:42 1250
18:17:30
18:17:21
18:17:11
18:17:00
18:16:45
18:16:28 1245
(2) 1249.50 S
HECK IMAGE


LEAST DEPTH CONTACT #2
280
1281
40 FT
1282
1283
40 FT
50 FT
60 FT
70 FT
80 FT
90 FT
50 FT
60 FT
70 FT
80 FT
90 FT
38.4
45410
152724
2 D
152835
153306
2 D

1411 1275 14:40:23 28448.0 7393.4 893 446 58.7 5.6 5.5(2C6A)

TOTAL MILES : .08
AVERAGE SPEED : 2.7 KT = 1.4 M/SEC

Last DSN : 1420

1420	1276	14:49:04	26590.0	7298.6	799	590	67.4	5.6	1.6(2C6A)
1420	1277	14:52:02	26561.8	7274.8	775	562	67.9	5.6	3.0(2C6A)
1420	1278	14:52:07	26566.3	7269.5	770	566	68.7	6.1	1.3(2C-A)
1420	1279	14:52:25	26565.9	7243.0	743	566	67.5	5.6	.8(2C6A)
1420	1280	14:54:10	26572.0	7278.0	778	572	62.2	5.6	1.2(2C6A)

Reference Line: 0
First DSN : 1421

1281.2 F = Fix Contact #2

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res Lop's
1422	1281	15:27:24	28641.4	8626.7	2127	2641	63.4	5.6	2.3(2C6A)
1429		15:27:40	28665.8	8654.2	2154	2666	63.1	5.5	1.0(2C6A)
1281.2	INS	15 27 53	28686.9	8674.0			58.4		1.5 (2C6A)
1436	DELETE	~~15:27:57~~	~~28694.8~~	~~8675.9~~	~~2176~~	~~2695~~	~~60.2~~	~~5.5~~	~~4.9(2C6A)~~
1443		15:28:10	28716.4	8691.4	2191	2716	61.3	5.5	2.7(2C6A)
1450		15:28:23	28738.4	8704.2	2204	2738	61.3	5.5	1.6(2C6A)
1457	1282	15:28:39	28760.5	8719.6	2220	2760	60.5	5.5	.9(2C6A)

High Freq	58.4'	
Draft	6.9'	
Vel Corr	2.2'	
Tide	~~-1.6'~~	-3.5
Heave	0.4'	
Corrected Depth	~~66.3~~	
	64.4	predicted tides
	63.7	observed tides.

TOTAL MILES : .09
AVERAGE SPEED : 4 KT = 2.1 M/SEC

Last DSN : 1460

Reference Line: 0
First DSN : 1461

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res Lop's
1462	1283	15:33:06	28690.5	8734.0	2254	2691	57.2	5.6	3.6(2C6A)
1469		15:33:22	28690.4	8725.9	2226	2690	59.0	5.5	2.7(2C6A)
1476		15:33:36	28688.3	8703.9	2204	2688	60.8	6.1	.1(2C-A)
1483		15:33:51	28688.4	8675.8	2176	2688	58.9	6.1	.2(2C-A)
1490		15:34:04	28688.0	8651.7	2152	2688	63.2	5.5	1.5(2C6A)
1497		15:34:21	28690.8	8620.4	2120	2691	64.8	5.5	3.2(2C6A)
1504	1284	15:34:36	28690.0	8592.4	2092	2690	63.4	5.6	1.4(2C6A)

TOTAL MILES : .09
AVERAGE SPEED : 3.5 KT = 1.8 M/SEC

Last DSN : 1510

Contact #2

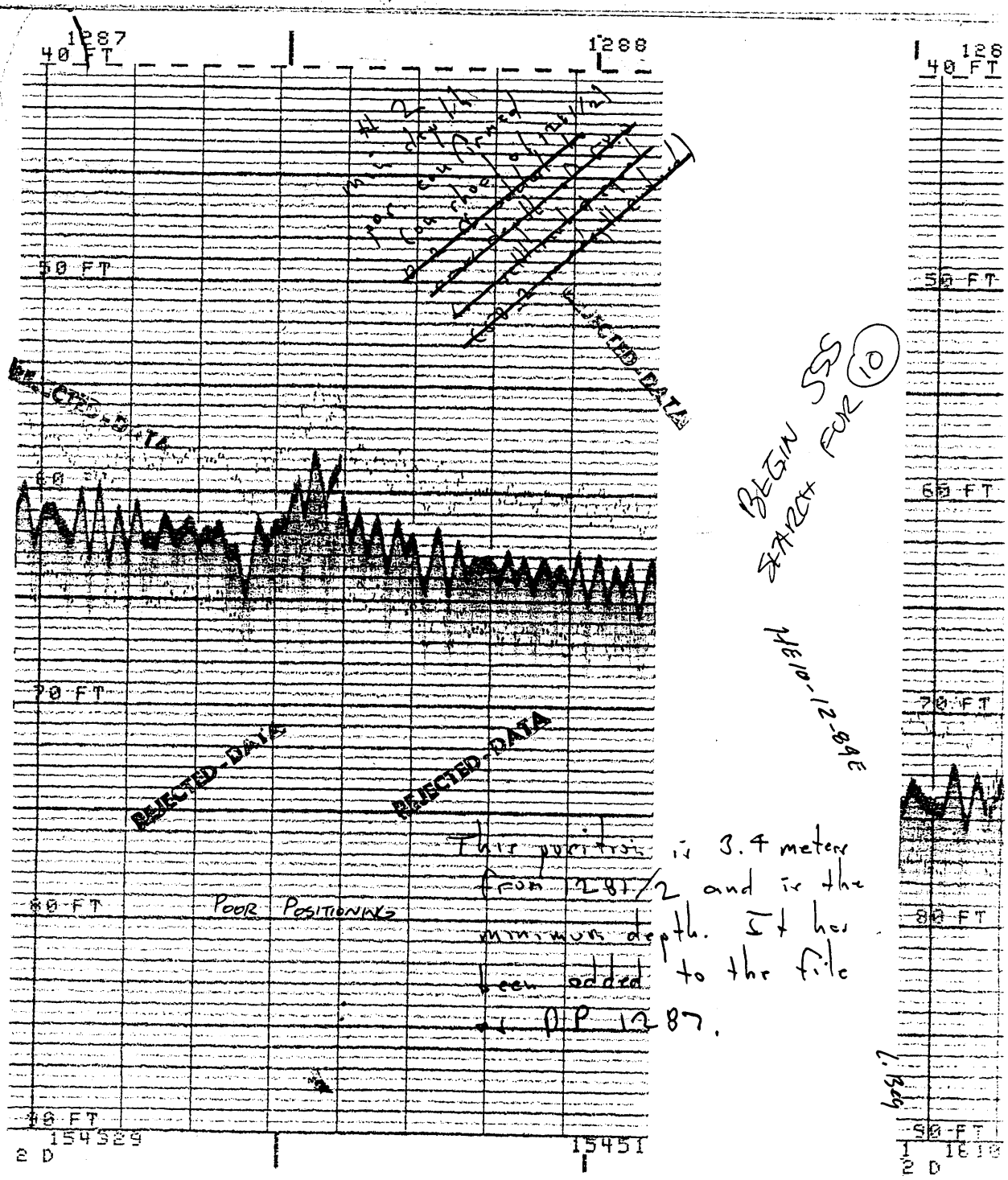
NAVISOFT 300 4.00   PRE-SURVEY: UTILITIES: MTM -> LAT/LON   5 Nov 21:26:36

sting........: 28686.9
Northing.......: 8674.0

Latitude.......: 040:08:41.203
Longtitude.....: 073:54:24.237

User 1   Caps   Running

HELP   Dump Alpha   Dump Graphics



p 18 a. Caddell

1554 1286 15:40:08 28644.2 8672.3 2232 2644 58.0 3.5 - - 3.9(2C6A)

TOTAL MILES : .09
AVERAGE SPEED : 3.4 KT = 1.8 M/SEC

DSN : 1560

Reference Line: 0
First DSN : 1561

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr Max Res Lop's
1562	1287	15:43:29	28608.9	8672.3	2172	2609	60.6	5.6 - - .7(2C6A)
1569		15:43:45	28631.0	8672.4	2172	2631	62.2	6.1 - - .5(2C-A)
1576		15:43:58	28[illegible]4.4	8670.4	2170	2654	62.0	5.5 - - 3.0(2C6A)
1583		15:44:13	28678.0	8670.8	2171	267[illegible]	61.3	5.5 - - 4.2(2C6A)
	1287	15:44:21	28688.6	8671.0			58.0	
1590		15:44:3[illegible]	28699.2	8671.1	217[illegible]	2699	60.2	5.5 - - 1.6(2C6A)
1597		15:44:40	28720.0	8668.7	2169	2720	61.9	5.6 - - 1.0(2C6A)
1604		15:44:55	28746.7	8665.0	2165	2747	63.0	5.5 - - 3.9(2C6A)
1611	1288	15:45:11	28770.1	8666.2	2166	2770	63.9	6.1 - - .4(2C-A)

REJECTED-DATA

REJECTED-DATA

AL MILES : .09
RAGE SPEED : 3.1 KT = 1.6 M/SEC

Last DSN : 1620

Poor Positioning
- Position 3.4 meters from 1287 & minimum depth.

∴ Added DP 1287

Hi Freq. 58.0
Draft 6.9
Vel Corr 2.4
Tide -4.3
63.0 observed tides

N O A A

Date :24 Aug 1989

Project Number.....:C-147-HE
Datum.....:NAD 83
False Easting....: 25000 Clat.:040:04:00.000 Central Meridian.:073:57:00.000

Day No.....: 236
Field Sheet No.....: 11
Predicted Tide Table.: 5
Sound Velocity Table.: 2
C-O Table.....: 4
Offset Table.....: 1
Segment Number.....: 27

'escan Sonar.....: Off
e No.....: 22910
First DSN.....: 1621
Vessel No.....: 9140

EQUIPMENT SERIAL NUMBERS
Echosounder.....:
Side Scan Recorder:
Side Scan Fish....:
Falcon RPU.....:
Falcon RT#1.....:
Falcon RT#2.....:
Argo.....:

p 186 (added)

[redacted]

K.2 INVESTIGATION REPORT FOR CONTACT #10

NOAA's correction

AREA OF INVESTIGATION:

State: New Jersey
County: Monmouth
Locality: 6.2 MN east of Spring Lake, New Jersey
Latitude: 40° 08' 30.240" N
Longitude: 73° 53' 12.011" W
Reported Depth: 71 feet (H-10290)

SURVEY PROCEDURES:

Positioning:	Falcon Mini Ranger
Side Scan Sonar Search:	DOY: 236
Hydrographic Investigation:	DOY: 236
Contacts:	ONE

A 50 meter SSS investigation was conducted over the position provided by WHITING. The item was resolved by running a series of development hydrographic sounding lines over the coordinates computed by the HECK. The HECK located the contact at position 1307P Line spacing results are shown on the 1:5000 scale plot HE-5-12-89C.

K.2 CONTACT INVESTIGATION REPORT CONTACT #10

CONTACT DESCRIPTION: The side scan sonar record reveals that the contact is a rocky shoal area approximately 55 meters long by 45 meters wide. The contact is probably made up of coral or rock typical of other contacts that HECK personnel investigated in the area. The position of least depth is at fix 1310.15F.

LEAST DEPTH DETERMINATION: The least depth was determined by echosounder.

Date of measurement: 24 August 1989 (DOY 236)
Time of measurement: 17:17 GMT

Echosounder depth:	68.5	
Velocity corrector:	2.4	
Draft corrector:	6.9	
Predicted tidal corrector:	~~-3.8~~	4.6
Heave	0.0	
Least Depth	~~74.5~~	79.2 predicted tides
		72.5 observed tides

POSITION DETERMINATION:

Fix number: 1310.15F
Number of LOPs: 4
ECR: *
MAX RES: 4.8

Easting: 30387.0
Northing: 8335.5

Latitude: 40° 08' 30.195" N
Longitude: 73° 53' 12.421" W

RECOMMENDATIONS: Contact 10 is shown on prior survey H-10290 as a shoal sounding of 71 feet. Surrounding depths range from 77 feet to 81. The contact was listed in the WHITING's contact abstract as "DUMPSITE" and was recommended for echosounder development or diver least depth. The HECK resolved the contact by echosounder development. ✓

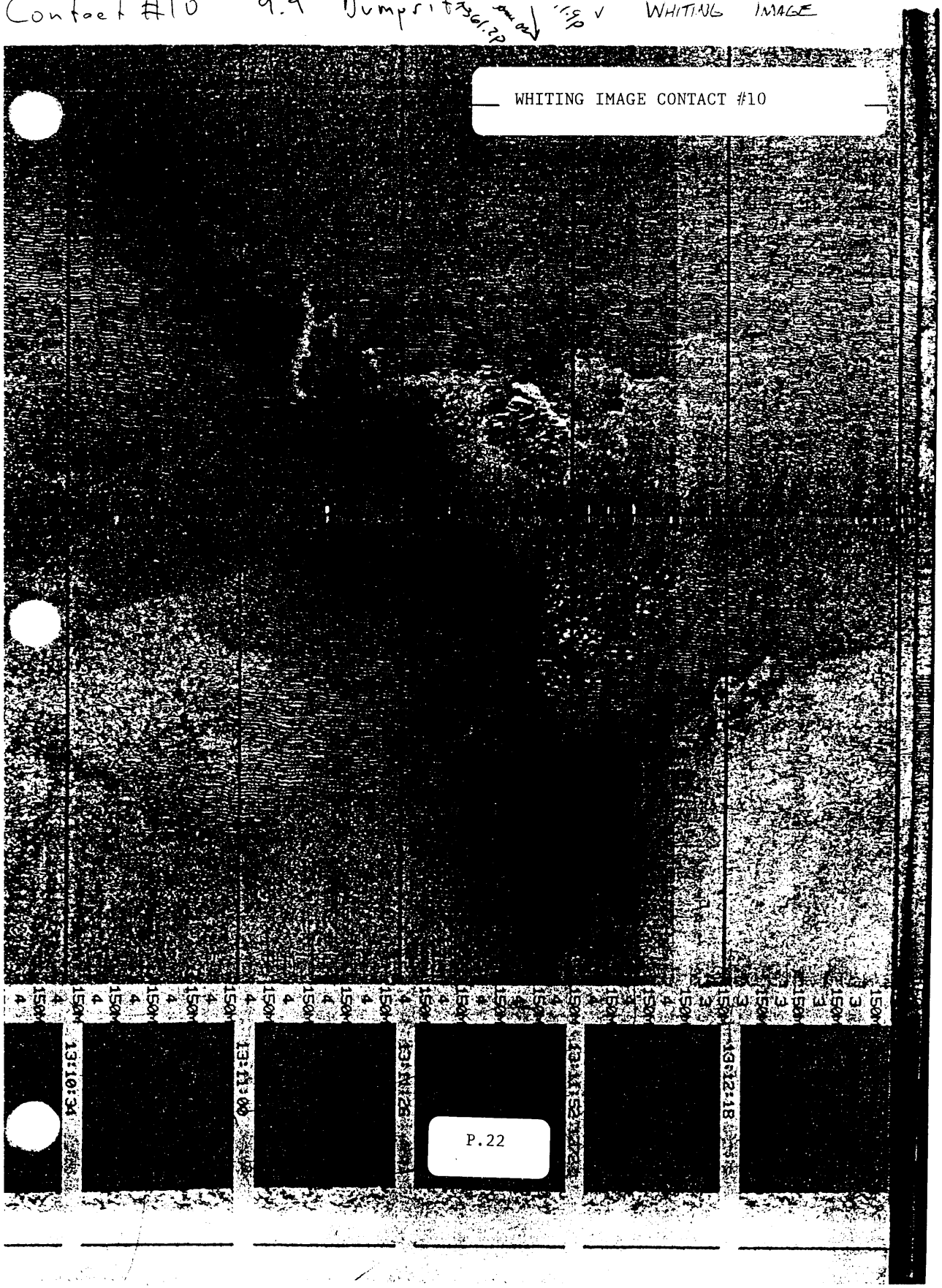
The contact lies approximately 6.2 miles offshore and is 0.5 miles east of the 60 foot depth contour. The contact is not charted. ✓

HECK recommends that the contact be charted as a shoal sounding on isolated rocks with a known depth of ~~71~~ 72 feet. The contact is not a danger to navigation. concur

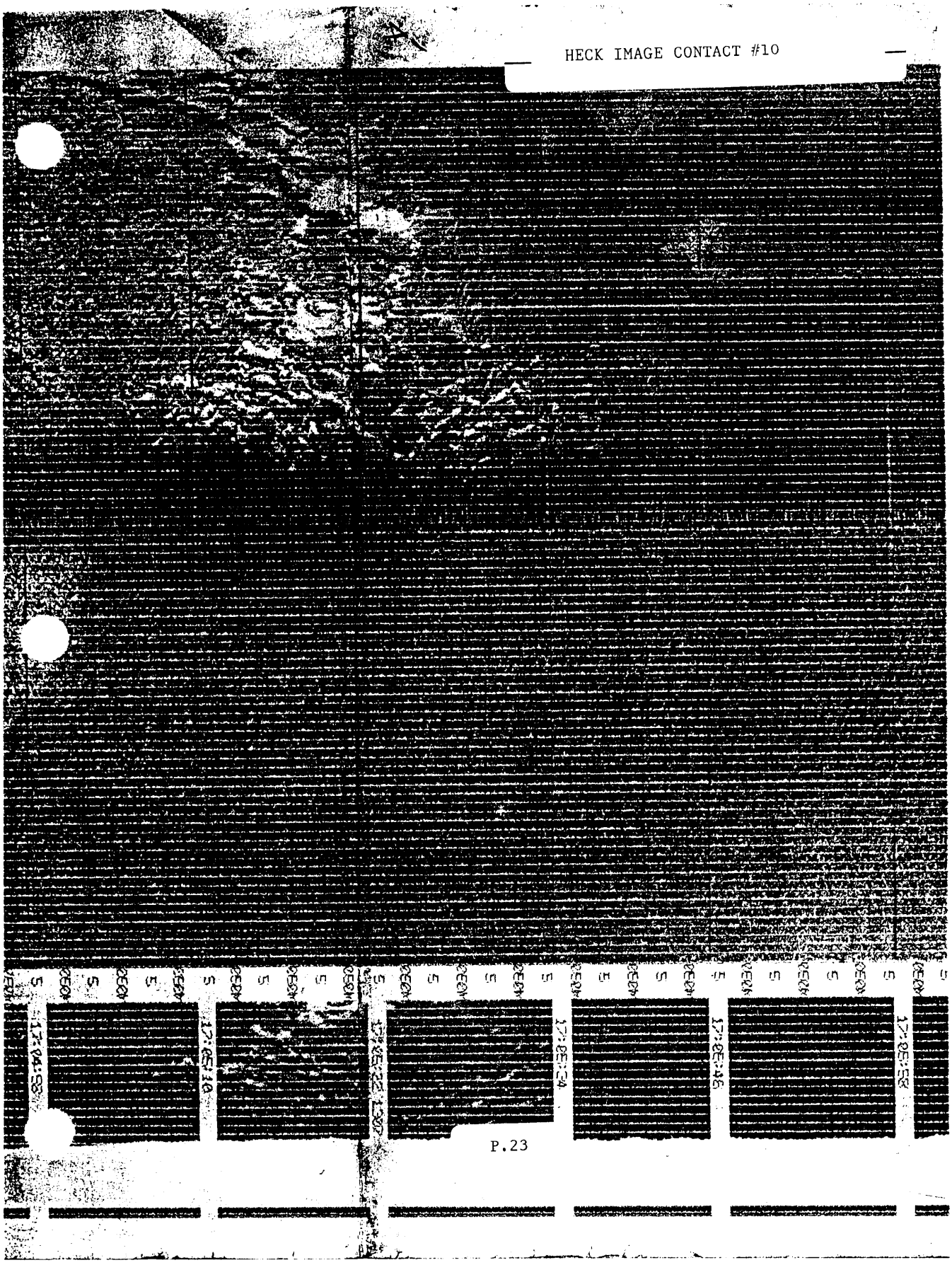
The obstruction covered 71 feet on H-10290 is superseded by the 72-foot sounding found on this survey.

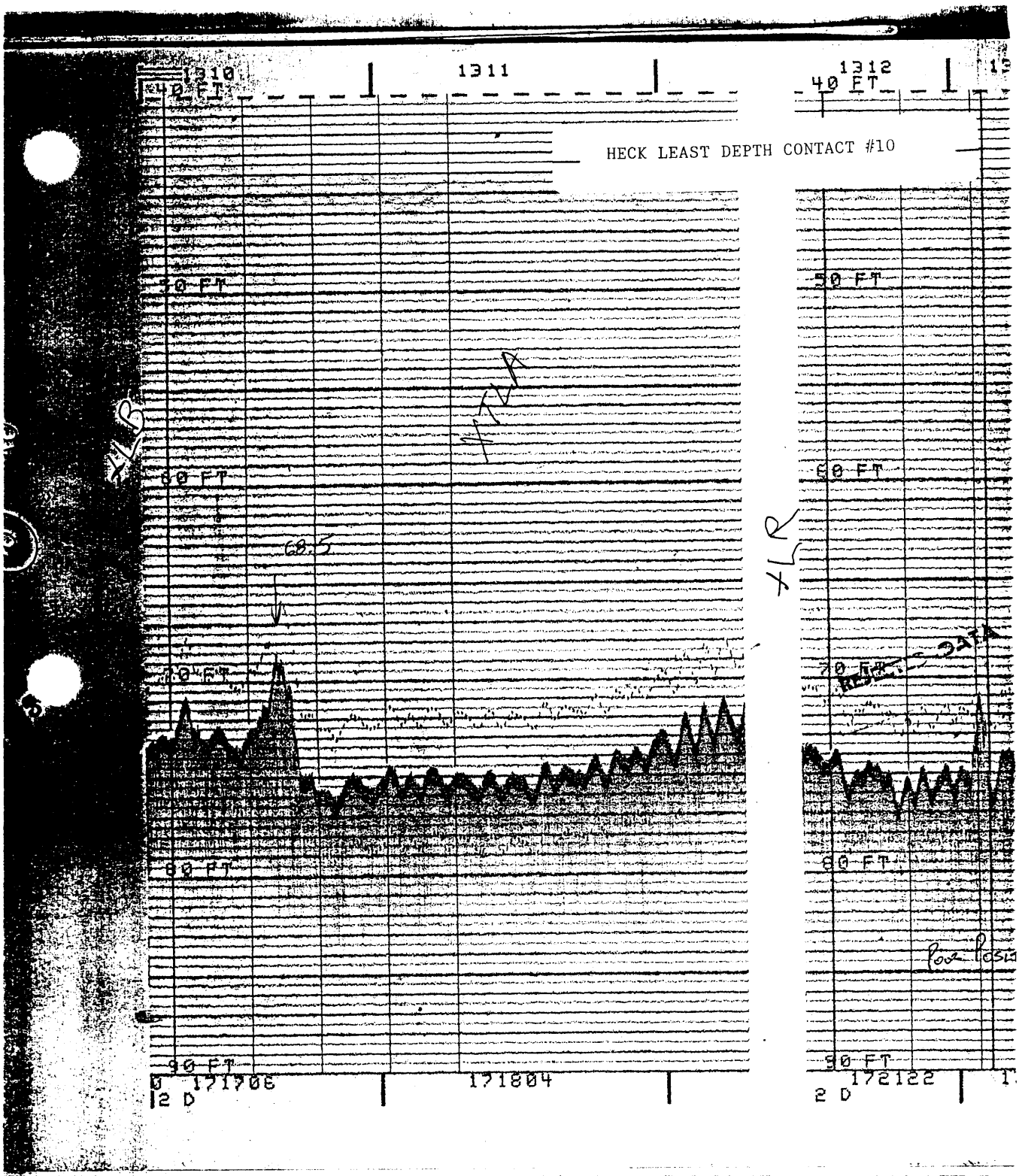
See sheet 2 of 4

Contact #10 9.9' Dumpsite WHITING IMAGE



HECK IMAGE CONTACT #10




1310
40 FT
1311
1312
40 FT
HECK LEAST DEPTH CONTACT #10
50 FT
60 FT
68.5
70 FT
80 FT
90 FT
171706
171804
172122
2 D
2 D

2012	1308	17:06:34	30643.2	8341.8	1342	643	74.8	6.1	-	.4(2-6A)
2017		17:06:46	30665.4	8344.9	1345	665	74.4	6.1	-	.3(2-6A)
2022		17:06:58	30686.5	8347.2	1347	687	73.3	6.1	-	.9(2-6A)
[illegible]	1309	17:07:10	30709.4	8350.5	1350	709	74.9	6.1	-	.4(2-6A)

TOTAL MILES : .24
AVERAGE SPEED : 3.5 KT = 1.8 M/SEC

XLE

Last DSN : 2030

1310.2 F = Fix Contact # 10

High Freq =	68.5'
Draft =	6.9'
Vel Corr =	2.4
Tide :	~~-3.3~~ -4.6
Heave =	0.0
Corrected Depth:	~~74.5~~ FEET
	73.2 " predicted tides
	74.5 " observed tides

BEGIN HYDRO ON (10)

Reference Line: 1340
First DSN : 2031

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res Lop's
[illegible]	1310	17:17:06	30439.6	8384.3	1385	440	72.3	5.7	- 5.8(2C6A)
2039		17:17:21	30402.2	8352.4	1352	402	72.6	5.7	- 1.9(2C6A)
Fix 1310.2 ins		17 17 27	30387.0	8335.5	-	-	68.5	-	4.8(2C6A)
2046		17:17:35	30367.0	8320.5	1321	367	75.7	6.1	- .8(2-6A)
2053		17:17:50	30335.2	8281.4	1281	335	74.7	5.7	- 3.1(2C6A)
2060	1311	17:18:04	30300.0	8247.3	1247	300	74.8	6.1	- 1.4(2-6A)

XL Bag

TOTAL MILES : .11
AVERAGE SPEED : 6.5 KT = 3.4 M/SEC

LTLA

Last DSN : 2070

Reference Line: 1340
First DSN : 2071

ER

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res Lop's
2072	1312	17:21:22	30374.2	8233.9	1234	374	73.8	5.7	- 3.5(2C6A)
2079		17:21:37	30381.1	8282.8	[illegible]	[illegible]	75.3	5.7	- 4.7(2C6A)
[illegible]		17:21:51	30381.0	8333.7	1334	[illegible]	71.4	5.7	- 2.6(2C6A)
2087	1313	17:21:53	30380.6	8339.8	1340	381	75.3	5.7	- 2.8(2C6A)
2093		17:22:08	30379.7	8384.8	[illegible]	380	74.0	5.7	- 2.3(2C6A)
2100		17:22:22	30379.0	8441.2	1441	379	74.5	6.1	- 1.2(2-6A)

REJECTED-DATA

REJECTED-DATA

Contact #10

NAVISOFT 300 4.00 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 5 Nov 21:26:36

sting.....: 30387.0_
Northing.....: 8335.5

Latitude.....: 040:08:30.195
Longtitude.....: 073:53:12.421

User 1 Caps Running

HELP Dump Alpha Dump Graphics

No AWOIS correction

K.3 INVESTIGATION REPORT FOR CONTACT #12

AREA OF INVESTIGATION:

State: New Jersey
County: Monmouth
Locality: 6.5 MN east of Sea Girt, New Jersey
Latitude: 40° 08' 04.763" N
Longitude: 73° 52' 56.325" W
Reported Depth: 76 feet (H-10290)

SURVEY PROCEDURES:

Positioning:	Falcon Mini Ranger
Side Scan Sonar Search:	DOY: 236
Hydrographic Investigation:	DOY: 236
Contacts:	ONE

A 50 meter SSS investigation was centered over the coordinates provided by WHITING. This item was resolved by running a series of development hydrographic sounding lines over coordinates determined by the HECK. HECK located the contact at position 1298.3S. Line spacing results are shown on the 1:5000 scale plot HE-5-12-89C.

K.3 CONTACT INVESTIGATION REPORT CONTACT #12

CONTACT DESCRIPTION: The side scan sonar record reveals that the contact is a rocky shoal area approximately 15 meters long by 15 meters wide. The contact is probably made up of coral or rock typical of other contacts that HECK personnel investigated in the area. The position of least depth is at fix 1320.3F.

LEAST DEPTH DETERMINATION: The least depth was determined by echosounder.

Date of measurement: 24 August 1989 (DOY 236)
Time of measurement: 17:38 GMT

Echosounder depth:	69.8	
Velocity corrector:	2.8	
Draft corrector:	6.9	
Predicted tidal corrector:	~~-3.8~~	4.7
Heave	0.0	
Least Depth	~~75.9~~	74.8 predicted tides
		74.0 observed tides

POSITION DETERMINATION:

Fix number: 1320.3F
Number of LOPs: 4
ECR: *
MAX RES: 1.8

Easting: 30773.3
Northing: 7547.6

Latitude: 40° 08' 04.640" N
Longitude: 73° 52' 56.127" W

RECOMMENDATIONS: Contact 12 is shown on prior survey H-10290 as a shoal obstruction with a depth of 76 feet. Surrounding depths range from 74 feet to 85 feet. The contact was listed in the WHITING's contact abstract as "OBSTRUCTION" and was recommended for diver least depth. The HECK resolved the contact by echosounder development for contact 12. ✓

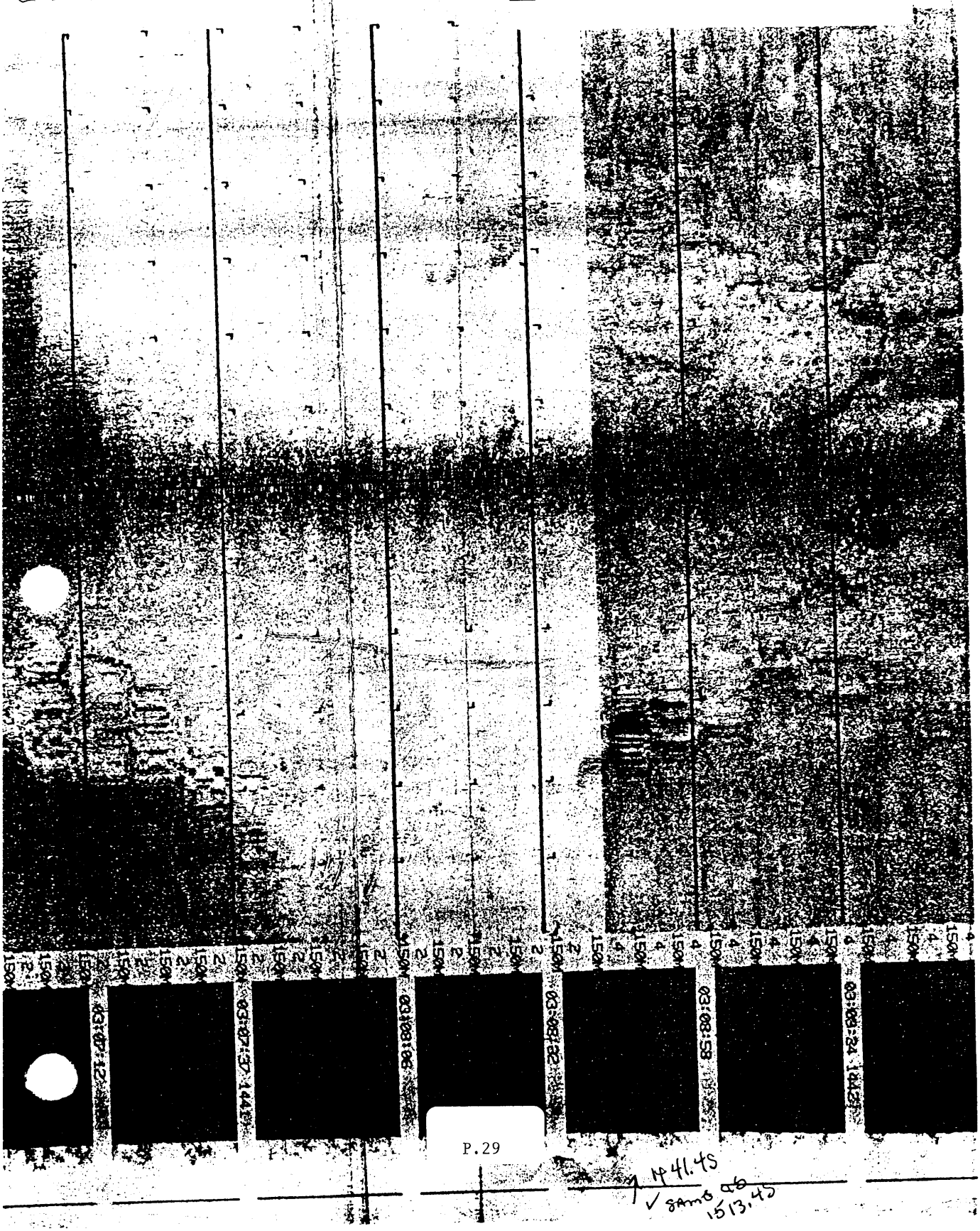
The contact lies approximately 6.5 miles offshore and is 1.5 miles east of the 60 foot depth contour. The contact is not charted. The nearest charted sounding is 71 feet. ✓

HECK recommends that the contact be charted as a shoal sounding on isolated rocks, not dangerous to navigation, with a known depth of 76 feet. The sounding should be charted at the coordinates determined in this survey. Do not concur

The obstruction covered 76 feet on H-10290 is superseded by the 74-foot sounding found on this survey.
See Eval Rpt, sec 7b, for the charting disposition of this feature.
See sheet 2 of 4

Contact #12 8.7 06

WHITING IMAGE CONTACT #12



41.45
same as 06
1513.45

HECK IMAGE CONTACT #12

16:46:54

16:46:11

16:46:00

16:45:48

16:45:36

16:45:22 1298

16:45:10

16:44:58

CABLE OUT METERS 180

SHIP'S [illegible]

HELI IMAGE

12

HECK LEAST DEPTH CONTACT #12

2176		17:32:25	30775.9	7520.8	521	776	78.2	5.8		1.3(2C6A)
2183		17:32:40	30741.4	7485.3	485	741	78.5	5.8		2.0(2C6A)
2190	1319	17:32:56	30710.9	7440.1	440	711	79.0	5.8		1.6(2C6A)

TOTAL MILES : .11
AVERAGE SPEED : 5.9 KT = 3 M/SEC

Last DSN : 2200

Fix 1320.3 = Fix Contact #12 (45°) LR

Reference Line: 7530
First DSN : 2201

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
2202	1320	17:37:29	30694.0	7453.8	454	694	79.7	5.9		2.6(2C6A)
2209		17:37:46	30718.6	7484.7	485	719	78.4	5.8		3.4(2C6A)
2216		17:38:01	30749.3	7525.5	526	749	77.7	5.8		1.8(2C6A)
Fix 1320.3 INS		17 38 11	30773.8	7547.6			69.8			
2223		17:38:15	30784.2	7556.2	556	784	77.4	5.8		1.4(2C6A)
2230		17:38:29	30826.2	7583.9	584	826	76.1	5.8		1.7(2C6A)
2237	1321	17:38:44	30871.6	7607.2	607	872	73.8	5.8		2.2(2C6A)

TOTAL MILES : .13
AVERAGE SPEED : 6.1 KT = 3.1 M/SEC

Last DSN : 2240

HIGH FREQ 69.8'
DRAFT 6.9'
VELOCITY CORR 2.8'
TIDE ~~-3.6~~ -4.7
HEAVE 0.0
CORRECTED DEPTH = ~~75.9~~ 74.8 predicted tides 15.70 LR
74.0 observed tides

LTJR

Reference Line: 7530
First DSN : 2241

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
2242	1322	17:41:28	30863.9	7553.4	553	864	78.5	5.9		1.4(2C6A)
2249		17:41:45	30809.0	7550.4	550	809	78.6	5.8		1.8(2C6A)
2254	1323	17:41:56	30771.0	7550.1	550	771	~~78.9~~ 78.4	5.8		1.9(2C6A)
2256		17:42:00	30754.6	7550.3	550	755	76.1	5.8		1.6(2C6A)
2263		17:42:15	30705.4	7556.9	557	705	74.7	5.8		1.3(2C6A)
2270	1324	17:42:29	30654.9	7562.4	562	655	70.8	5.8		2.1(2C6A)

TOTAL MILES : .12
AVERAGE SPEED : 6.7 KT = 3.4 M/SEC

Last DSN : 2280

LTJR

Contact #12

NAVISOFT 300 4.00 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 5 Nov 21:26:36

sting.....: 30773.3
Northing.....: 7547.6

Latitude.....: 040:08:04.640
Longtitude.....: 073:52:56.127

User 1 Caps Running

HELP Dump Alpha Dump Graphics

AWOIS #7778

K.4 CONTACT INVESTIGATION REPORT FOR CONTACT #16

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 4.2 NM east of Spring Lake, NJ
Latitude: 40° 08' 51.400"
Longitude: 73° 55' 49.473"
Reported Depth: 65 feet (H-10290)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 234
Diver Investigations: DOY 235
Contacts: One

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. HECK first located the contact at position 1237.15S. A second image was obtained at position 1241.05P. A marker buoy was deployed at position 1254. Divers moved the buoy to the high point. The HECK was maneuvered alongside the buoy and fix 1257 was taken when the wreck was visibile on the echosounder.

K.4 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER #16

DIVER INVESTIGATION SUMMARY :LT(jg) Wilkes and ENS Weiner descended the marker buoy to the bottom in approximately 80 feet of water. The visibility was good. A 30 meter circle search was performed about a large coral-covered object. The marker buoy was moved to the high point and the least depth measurement was made with the pneumofathometer.

CONTACT DESCRIPTION : The divers located a badly deteriorated wooden wreck which was sunken into a flat sandy bottom. The highest object in the area was a large coral covered rock or piece of wreckage lying nearby the main body of the wreckage. Although visibility was good, the divers were unable to determine the exact nature of this coral-covered object. A positive identification of wreckage could not be made.

LEAST DEPTH DETERMINATION :

Date of measurement: 23 August 1989 (DOY 235)
Time (UTC): 16:18 (Poc # 2003)

Average Pnumo depth: 64.1 feet
PREDICTED tidal corrector: ~~-4.8~~ 3 feet

Least depth: ~~59.3~~ 58.7 feet predicted tides
observed tides

POSITION DETERMINATION :

Fix number: 1257.0F (also Poc # 2003)
Number of LOP's: 3
Maximum residual: 2.8
Error circle radius: 9.1 ✓

Easting: 26660.5
Northing: 8980.6

Latitude: 040° 08' 51.166"
Longitude: 073° 55' 49.845"

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
	15503.1	26907.3	43517.6	59778.2

RECOMMENDATIONS : Contact 16 is shown on prior survey H-10290 as an obstruction with a depth of 65 feet. The contact was listed in the WHITING's contact abstract as a "WRECK" and was recommended for diver investigation. ✓

The contact lies approximately 4.2 miles offshore and is 0.20 miles north of the 60 foot depth contour. The contact is not charted. ✓

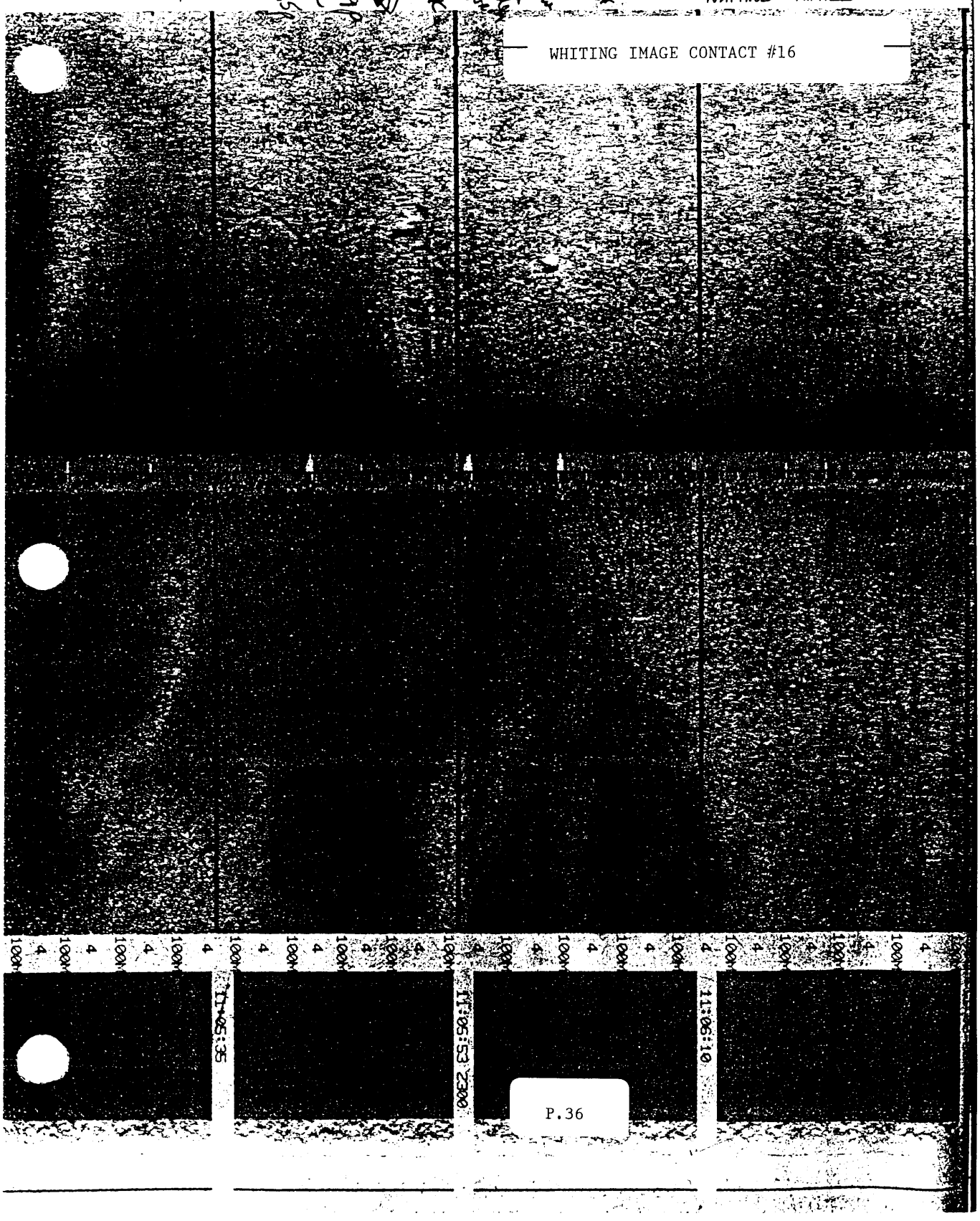
The HECK recommends that the contact be charted as wreckage not dangerous to navigation, with a known depth of ~~60~~ 58 feet. The wreckage should be charted at the position determined in this survey. Do not concur.

The obstruction covered 65 feet on H-10290 is superseded. Chart a dangerous wreck covered 58 feet at the position found during this survey. at MLLW

See sheet 3 of 4.

Contact #16 Wreck 4.5' Wreck Whiting Image

WHITING IMAGE CONTACT #16



HECK IMAGE CONTACT #16

Exhibit HEH-1 (16) 124.05P 124.20P

P.C# 2003

CB

DIVING OPERATIONS
C-147

DATE: 8/23 1989

UNIT: NOAA SHIP HECK S591
AWOIS ITEM #
TARGET # 16

LOCATION: MIDDLE ATLANTIC COAST

DIVE MASTER: LT.G.TUELL
TENDERS: AB.LEWIS
C.B.MICKLE

DIVERS: WGINER
WICKES

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: FT.
MAX TIME : MIN.
AVERAGE LEAST DEPTH: 64.1 FT.
DEPTH: (1) 63.2 (2) 62.8 (3) 66.4 LEAST DEPTH TIME : 12 : 18

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

+4
16:18 Z

CONDITIONS:
WIND : DIR KTS
SEAS : DIR FT
CURRENT : KTS

VISIBILITY: FT.
AIR TEMP: (C)
WATER TEMP: (C)

TANK PRESSURE: * DIVE TIME: *

ALL TIMES LOCAL:
162702 Z

DIVERS NAME #	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
Lee				*IN 2750/2800		*DN 1149	:30	80'	G
wilkes				OUT*		1220 UP*	:30	80'	G
2				*IN / OUT*		*DN / UP*			
3				*IN / OUT*		*DN / UP*			

S	D
R ~~52.2~~	58.8
~~60.0~~	63.2
63.2	66.0
66.4	67.8
~~62.8~~	68.2
68.0	

POST DIVE COMMENTS: Went down buoy line. Swam ~6 meters & located a coral head that came off the bottom 3-4 feet. moved buoy to coral head & proceeded to perform 30 meter circle search. Swam along the perimeter of some wreckage. Divers determined that the original coral head was the highest point. Depth was determined by pneumofathometer.

Gladys A. Tuell
DIVE MASTER SIGNATURE

DP CONTACT (16)

1070 1257 16:27:02 26660.5 8980.6 2481 661 63.7 9.1 2.8(2C6-)

Leadline 64.1
Tides - 5.4
58.7 feet observed tides

BEGIN SEARCHING FOR (17)

70 1258 17:06:5 REJECTED-DATA 8639.0 2139 563 56.0 5.5 3.4(2C6A)

1070 1259 17:13:2 REJECTED-DATA 26569.2 R 8495.2 1995 569 56.1 5.5 3.7(2C6A)

Buoy Drop #17

1070 1260 17:17:16 26559.5 8637.6 2138 559 56.7 5.5 6.2(2C6A)

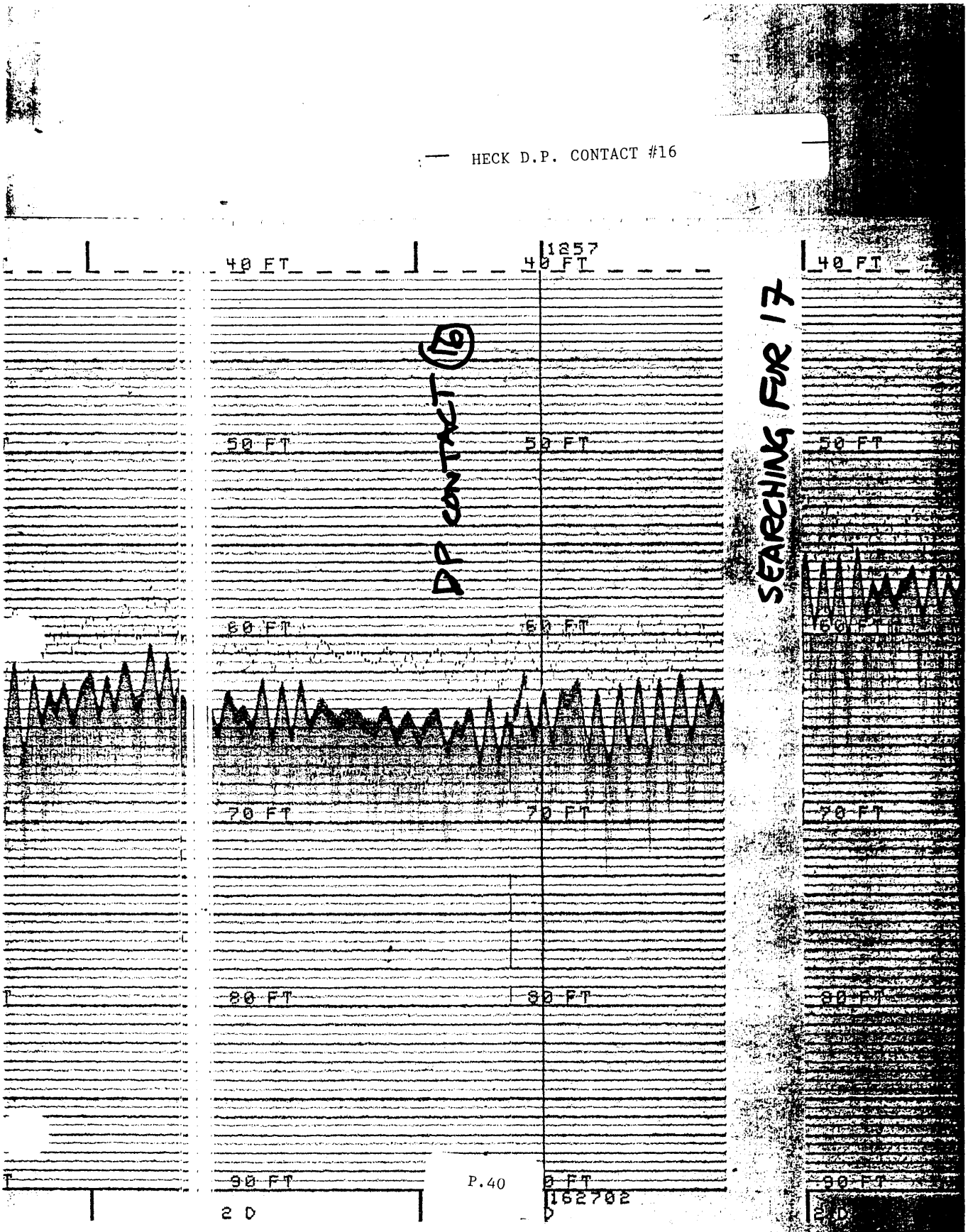
NOAA

Date :23 Aug 1989

Project Number.....:C-147-HE
Datum.....:NAD 83
False Easting....: 25000 Clat.:040:04:00.000 Central Meridian.:073:57:00.000

Day No.....: 235
Field Sheet No.....: 10

HECK D.P. CONTACT #16



HYDISOFT 300 2.45 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 9 Oct 15:53:34

Easting.....: 26660.5
Northing.....: 8980.6

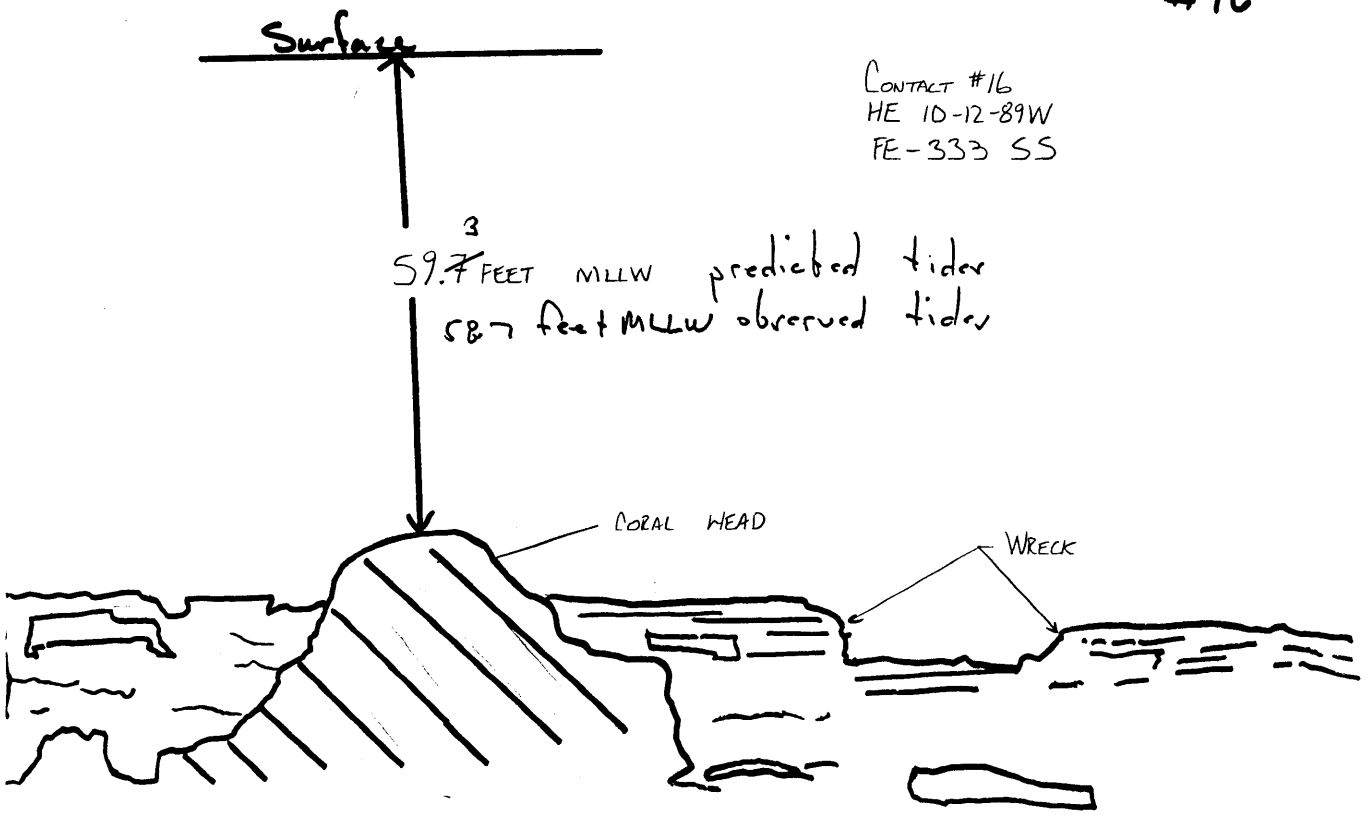
Latitude.....: 040:08:51.166
Longtitude.....: 073:55:49.845

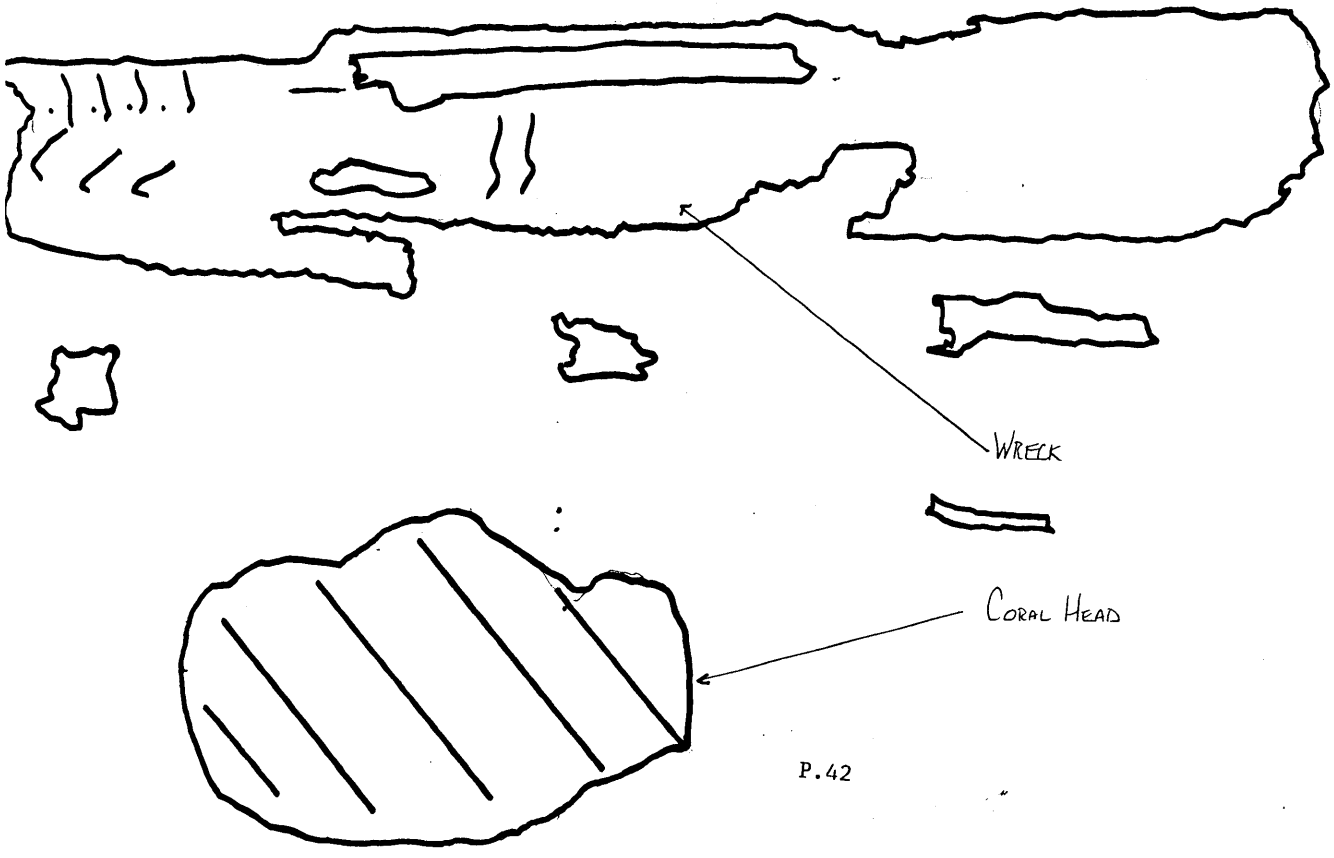
Day	Time	Tide Corr.	Units FEET
235	16:00	-4.2	
235	16:03	-4.3	
235	16:06	-4.3	
235	16:09	-4.3	
235	16:12	-4.4	
235	16:15	-4.4	
235	16:18	-4.4 ←	
235	16:21	-4.5	
235	16:24	-4.5	
235	16:27	-4.5	
235	16:30	-4.6	
	16:33	-4.6	
	16:36	-4.6	
235	16:39	-4.7	
235	16:42	-4.7	
235	16:45	-4.7	
235	16:48	-4.7	
235	16:51	-4.8	
235	16:54	-4.8	
235	16:57	-4.8 ←	
235	17:00	-4.8	
235	17:03	-4.8	
235	17:06	-4.9	

Contact #16 Corrector

This table does not include the zoning time difference. Add 40 minutes for the correct value (-4.8 feet)

#16


Surface
CONTACT #16
HE 10-12-89W
FE-333 SS
59.7 FEET MLLW predicted tides
58.7 feet MLLW observed tides
CORAL HEAD
WRECK


WRECK
CORAL HEAD

No AWOIS correction

K.5 INVESTIGATION REPORT FOR CONTACT #17

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 4.1 miles east of Spring Lake, NJ
Latitude: 40° 08' 40.101"
Longitude: 73° 55' 54.373"
Reported Depth: 47 feet (H-10290)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 234
Diver Investigations: DOY 235
Contacts: One

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. The HECK first located the contact at position 1247.15S. A marker buoy was deployed at position 1260. Divers then investigated the contact and determined the least depth. The buoy was then anchored on a short scope at the location of the least depth. Position 1267F was taken when the HECK was maneuvered alongside the marker buoy.

K.5 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER #17

DIVER INVESTIGATION SUMMARY: LT(jg) Wilkes and ENS Weiner descended the marker buoy line to the bottom in approx. 80 feet of water. The divers swam a 30 meter circle search. The contact was found visually during the circle search and identified as a rock outcrop. The least depth was determined by pneumofathometer.

CONTACT DESCRIPTION: The divers located a localized group of boulders rising above a flat sandy bottom. The least depth was measured on the highest of these boulders which rises about 4 feet above the bottom. These boulders are most likely debris dumped from a barge.

LEAST DEPTH DETERMINATION :

Date of measurement: 23 August 1989 (DOY 235)
Time (UTC): 19:19 (Pos # 2004)

Average pnumofatho. depth: 60.4 feet
PREDICTED tidal corrector: ~~-3.7~~ -4.4 feet

Least depth: 56.0 feet predicted tides
56.3 feet observed tides

POSITION DETERMINATION :

Fix number: 1267.0F (also Pos # 2004)
Number of LOP's: 4
Maximum residual: 2.1
Error circle radius: 5.5

Easting: 26557.0
Northing: 8631.5

Latitude: 040° 08' 39.849"
Longitude: 073° 55' 54.221"

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
	15503.7	26907.5	43515.7	59777.2

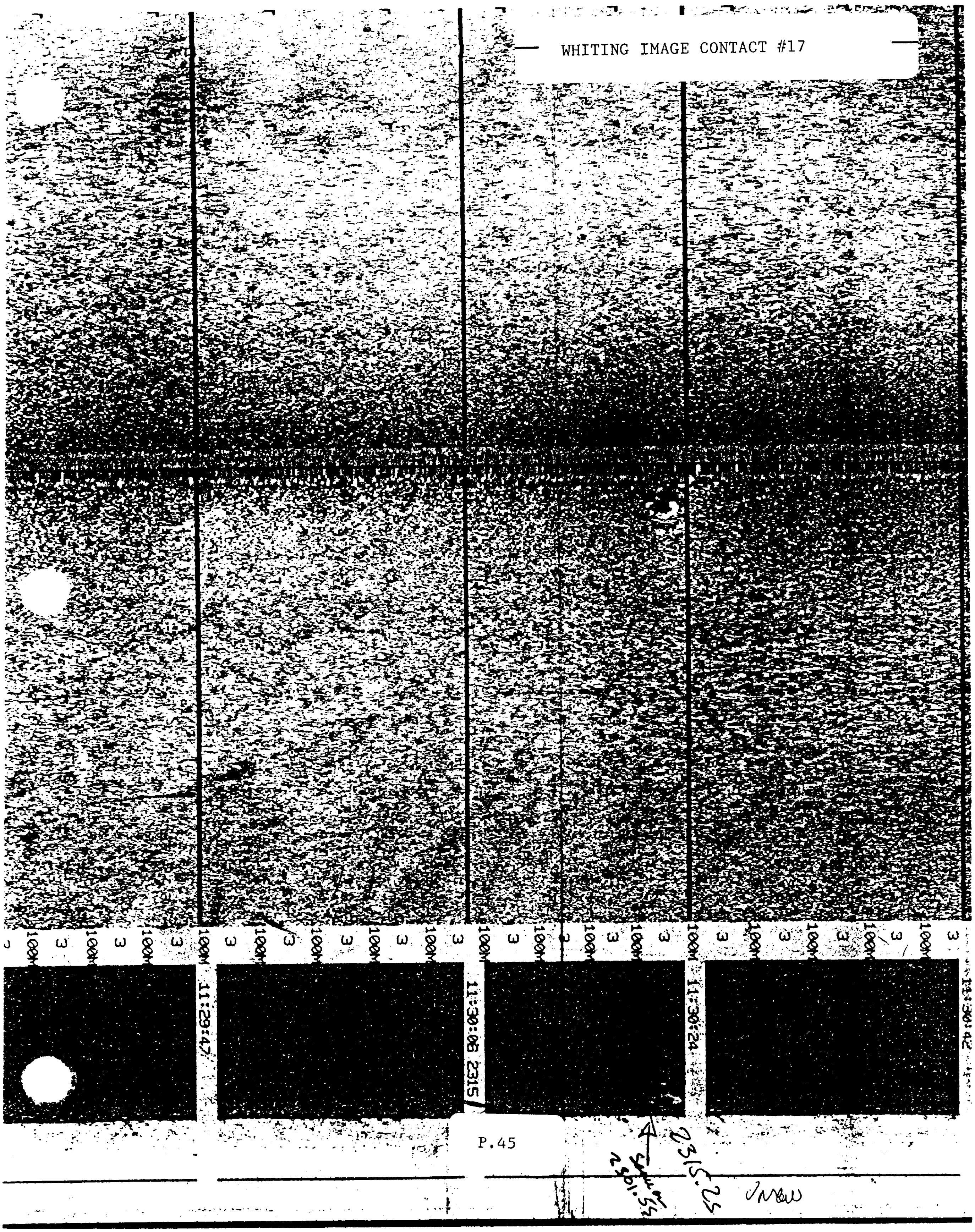
RECOMMENDATIONS : This contact is shown on prior survey H-10290 as an obstruction with a depth of 47 feet. Contact 17 was listed in the WHITING's contact abstract as "OBSTRUCTION" and was recommended for diver investigation. ✓

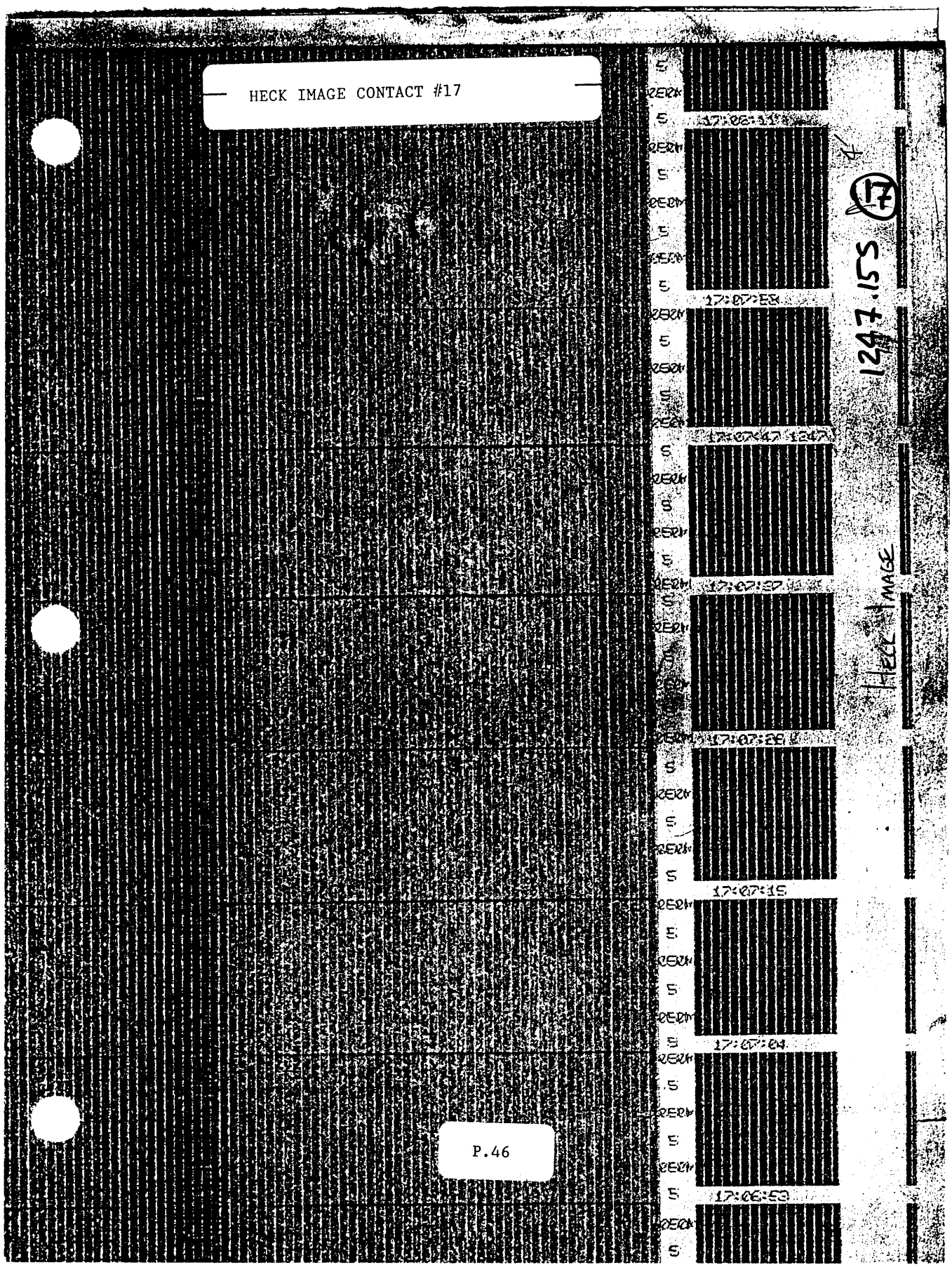
The contact lies approximately 4.1 miles offshore and is within a closed 60 foot depth contour line. The contact is not charted. The nearest charted depth is 60 feet. ✓

The HECK recommends that the contact be charted as a shoal sounding on isolated rocks, not dangerous to navigation, with a known depth of 56 feet at the position determined in this survey. Do not concur

The obstruction covered 47 feet on H-10290 is superseded. Chart a rock covered 56 feet at MLLW at the position determined during this survey.
See sheet 3 of 4

Contact #17 14.5' Obstruction WHITING IMAGE




HECK IMAGE CONTACT #17
17:08:11
17:07:58
17:07:47 1247
17:07:37
17:07:28
17:07:15
17:07:04
17:06:53
1247.155
17
HECK IMAGE
P.46

Por #2004

CB

DIVING OPERATIONS
C-147

DATE: 23 AUG 1989

UNIT: NOAA SHIP HECK S591
AWOIS ITEM #_____
TARGET # #17

LOCATION: MIDDLE ATLANTIC COAST

DIVE MASTER: LT. G. TUELL
TENDERS: AB. LEWIS
C.B. MICKLE

DIVERS: Dana Wilkes
Lee Wilkes

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: _____ FT.
MAX TIME : _____ MIN.
AVERAGE LEAST DEPTH: 60.4 FT.
DEPTH: (1) 60.4 (2) 60.4 (3) 60.4 LEAST DEPTH TIME : 19 : 19 Z

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR _____ KTS _____
SEAS : DIR _____ FT _____
CURRENT : KTS _____

VISIBILITY: FT. _____
AIR TEMP: (C) _____
WATER TEMP: (C) _____

ALL TIMES LOCAL:

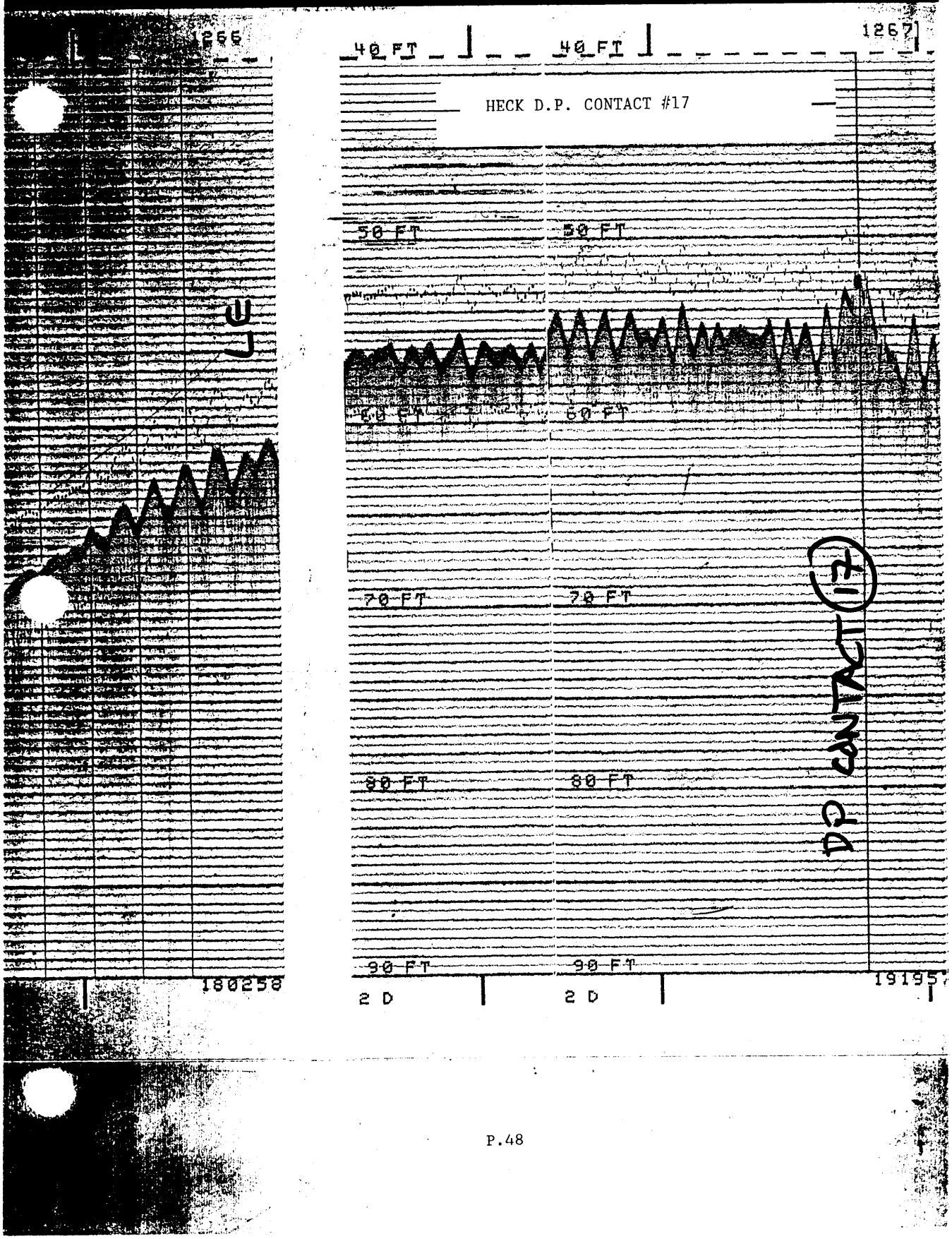
TANK PRESSURE: * DIVE TIME: *

DIVERS NAME #	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
wilkes			18	*IN 2900 / 2700		*DN 1450 / UP* 1512	22	80	I
Lee			18	500 / 400 OUT*		UP*	22	80	I
2				*IN / OUT*		*DN / UP*			
3				*IN / OUT*		*DN / UP*			

D | S
61.
60.8
60.4
60.4
60.4

POST DIVE COMMENTS: ~~Went~~ Went down buoy line. performed 30m circle Search. located highest point. moved buoy to highest. 5th pneumofathometer for least depth

DIVE MASTER SIGNATURE


1266
1267
40 FT
40 FT
HECK D.P. CONTACT #17
50 FT
50 FT
60 FT
70 FT
70 FT
80 FT
80 FT
90 FT
90 FT
180258
19195
2 D
2 D
D.P. CONTACT #17

TOTAL MILES : .18
AVERAGE SPEED : 4 KT = 2 M/SEC

LTRA

Last DSN : 1150

Reference Line: 660
First DSN : 1151

LR

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res Lop's
1152	1265	18:01:52	26590.5	7260.0	760	590	69.8	6.2	3.3(2C-A)
1157		18:02:03	26587.9	7280.6	781	588	66.3	6.2	2.9(2C-A)
1162		18:02:14	26582.7	7298.8	799	583	68.1	5.7	4.2(2C6A)
1167		18:02:25	26585.0	7315.6	816	585	67.7	5.7	7.3(2C6A)
1172		18:02:36	26579.3	7338.3	838	579	65.5	6.2	2.2(2C-A)
1177		18:02:47	26578.0	7357.0	857	578	65.1	5.7	4.1(2C6A)
1182	1266	18:02:58	26575.1	7375.7	876	575	62.2	5.6	5.0(2C6A)

TOTAL MILES : .07
AVERAGE SPEED : 3.4 KT = 1.8 M/SEC

LE

Last DSN : 1190

DP # 17

1190	1267	19:19:57	26557.0	8631.5	2132	557	52.0	5.5	2.1(2C6A)

Por # 2004 (Dive)

Pneum g 60.4
Tide - 4.1
56.3 feet observed tide

Por # 1267

Fath. Depth 52.0
Draft 6.9
Vel Cor 2.2
Tides - 4.1
57.0 feet observed tide

VISOFT 300 2.45 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 9 Oct 15:59:10

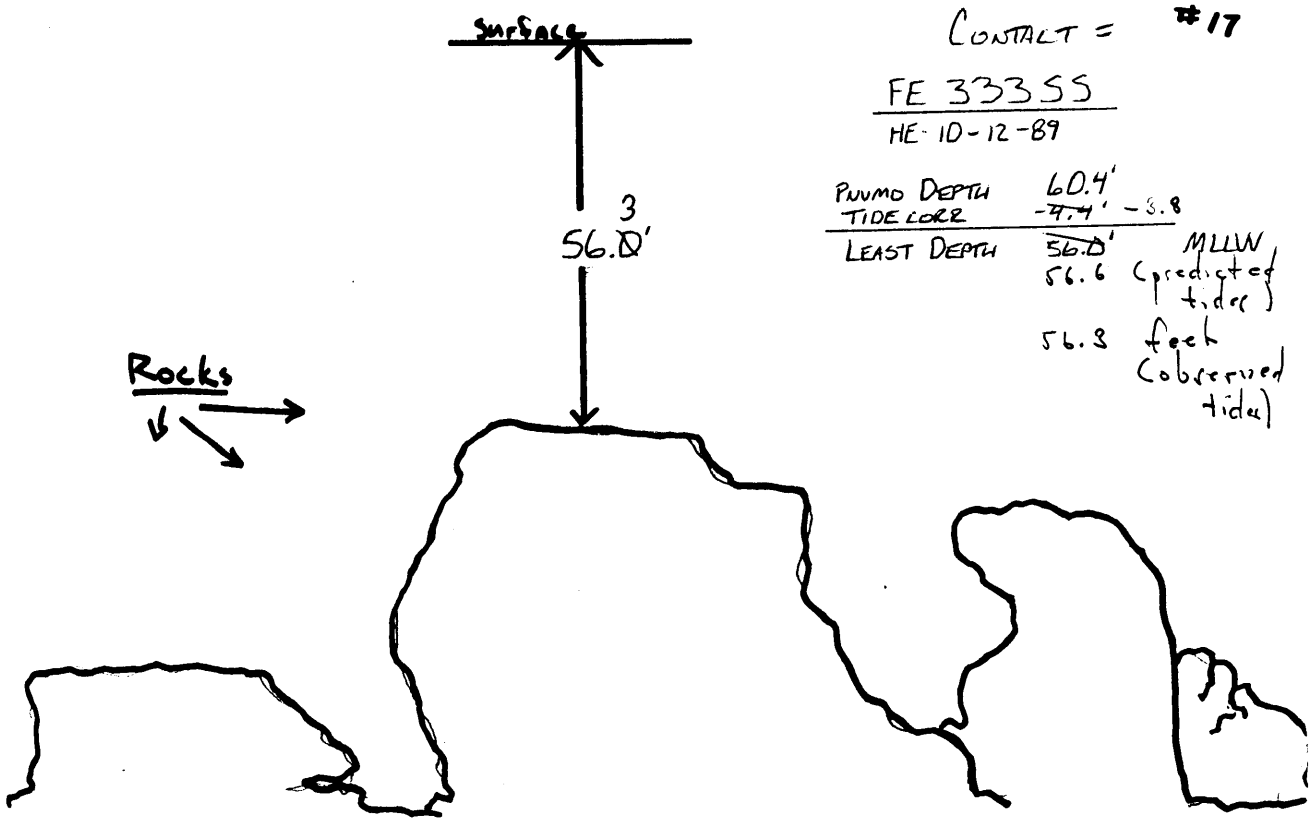
Easting.....: 26557.0_
Northing.....: 8631.5

Latitude.....: 040:08:39.849
Longtitude.....: 073:55:54.221

Day	Time	Tide Corr. Units FEET	
235	19:00	-4.6	
235	19:01	-4.5	
235	19:02	-4.5	
235	19:03	-4.5	
235	19:04	-4.5	
235	19:05	-4.5	
235	19:06	-4.5	
235	19:07	-4.5	
235	19:08	-4.5	
235	19:09	-4.5	
	19:10	-4.5	
	19:11	-4.4	
235	19:12	-4.4	
235	19:13	-4.4	
235	19:14	-4.4	
235	19:15	-4.4	
235	19:16	-4.4	
235	19:17	-4.4	
235	19:18	-4.4	
235	19:19	-4.4	← Contact #17 Corrector
235	19:20	-4.3	
235	19:21	-4.3	
235	19:22	-4.3	
235	19:23	-4.3	
235	19:24	-4.3	
235	19:25	-4.3	
235	19:26	-4.3	
235	19:27	-4.3	
235	19:28		

This table does not include the zoning time difference. Forty minutes should be added for the correct value at 19:19 (-3.8 feet)

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop

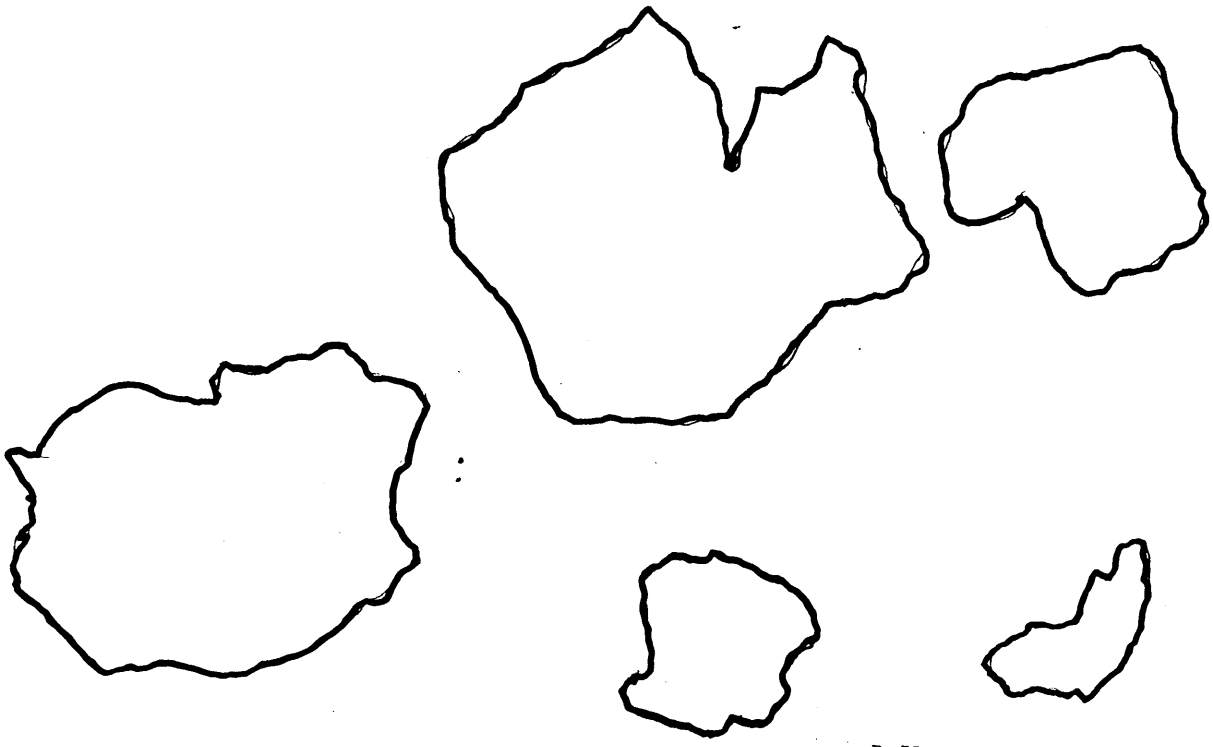


CONTACT = #17

FE 33355

HE 10-12-89

PNUMO DEPTH	60.4'	
TIDE CORR	-4.4'	-3.8
LEAST DEPTH	~~56.0'~~	MLLW
	56.6	(predicted tides)
	56.8	feet (observed tidal)



no AWOIS correction

K.6 INVESTIGATION REPORT FOR CONTACT #23

AREA OF INVESTIGATION:

State: New Jersey
County: Monmouth
Locality: 4.2 MN east of Sea Girt, New Jersey
Latitude: 40° 08' 00.855" N
Longitude: 73° 56' 00.449' W
Reported Depth: 56 feet (H-10290)

SURVEY PROCEDURES:

Positioning:	Falcon Mini Ranger
Side Scan Sonar Search:	DOY: 234
Hydrographic Investigation:	DOY: 236
Contacts:	ONE

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. HECK located the contact at position 1218.4P. This item was resolved by running a series of development hydrographic sounding lines over coordinates computed by the WHITING. Line spacing results are shown on the 1:5000 scale plot HE-5-12-89B. A diver investigation was not conducted.

K.6.1 CONTACT INVESTIGATION REPORT CONTACT #23

CONTACT DESCRIPTION: The side scan sonar record reveals that the contact is a rocky shoal area approximately 12 meters long by 5 meters wide. The contact is probably dredge spoil or other debris which has been dumped in the area. Least depth was found at position 1270.55F on the echosounder records. The least depth position was determined by scaling the echosounder records and arithmetically applying the result to the raw data records. This was done because of a position editing problem with this line using HDAPS. The easting/northing value at position 1270.55F was verified by contact 23 position 1274.5F. Position 1274.5F is 5 meters west of least depth position 1270.55F. Also, position 1274.5F falls on an echosounder record that exhibits a similar bottom characteristic/return as does the least depth position. This feature is within a fish haven (AWOIS 6825)

LEAST DEPTH DETERMINATION: The least depth was determined by echosounder.

Date of measurement: 24 August 1989 (DOY 236)
Time of measurement: 14:23 GMT

Echosounder depth:	52.9	
Velocity corrector:	2.0	
Draft corrector:	6.9	
Predicted tidal corrector:	~~-0.8~~	-2.2
Heave	0.2	
Least Depth	~~61.1~~	59.8 predicted tides
		59.1 observed tides

POSITION DETERMINATION:

Fix number: 1270.55F
Number of LOPs: *
ECR: *
MAX RES: *

Easting: 26408.1
Northing: 7425.9

Latitude: 40° 08' 00.761" N
Longitude: 73° 56' 00.521" W

RECOMMENDATIONS: Contact 23 is shown on prior survey H-10290 as an obstruction with a depth of 56 feet. Surrounding depths range from 60 feet to 65 feet. The contact was listed in the WHITING's contact abstract as "DUMPSITE" and was recommended for diver least depth or echosounder development. The HECK resolved the contact by echosounder development.

The contact lies approximately 4.2 miles offshore and is 0.4 miles west of the 60 foot depth contour. The contact is not charted, but is located within a charted "fish haven - obstructions" with an authorized minimum depth of 50 feet. The HECK witnessed considerable commercial traffic in the area, the largest of which were tugs running along the New Jersey shore. However, no vessels of 61 foot draft or deeper were observed.

The HECK recommends that the contact remain as charted: an obstruction within a fish haven. concur

The obstruction covered 56 feet on H-10290 is superseded. The 59-foot sounding found during this survey is deeper than the authorized 50-foot for the fish haven in which this feature is located. The fish haven should be retained as charted.

See Eval Rpt, sec 7b, for disposition of AWOIs 6825

See sheet 3 of 4.

Contact #23

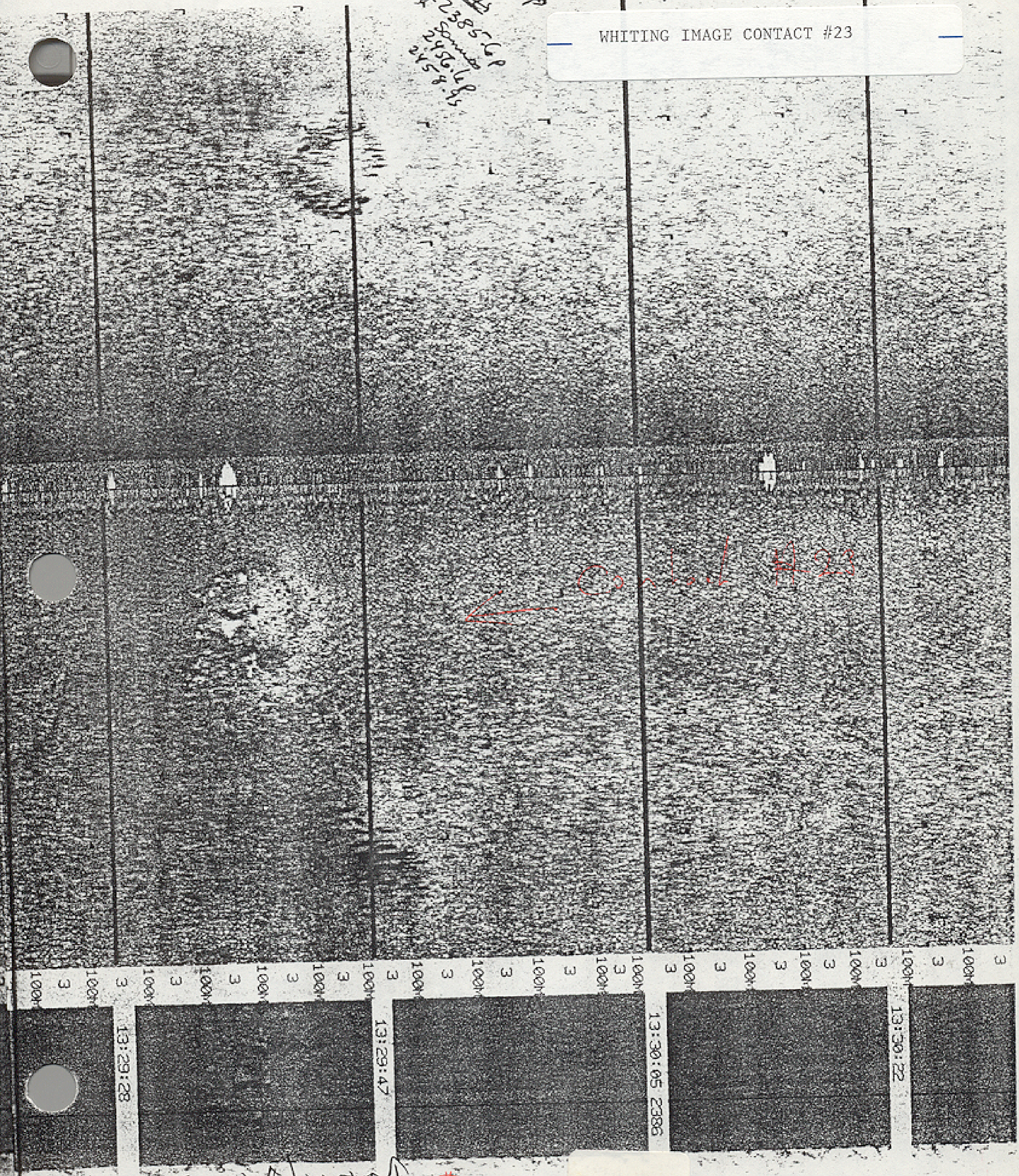
7.5' Dumpster

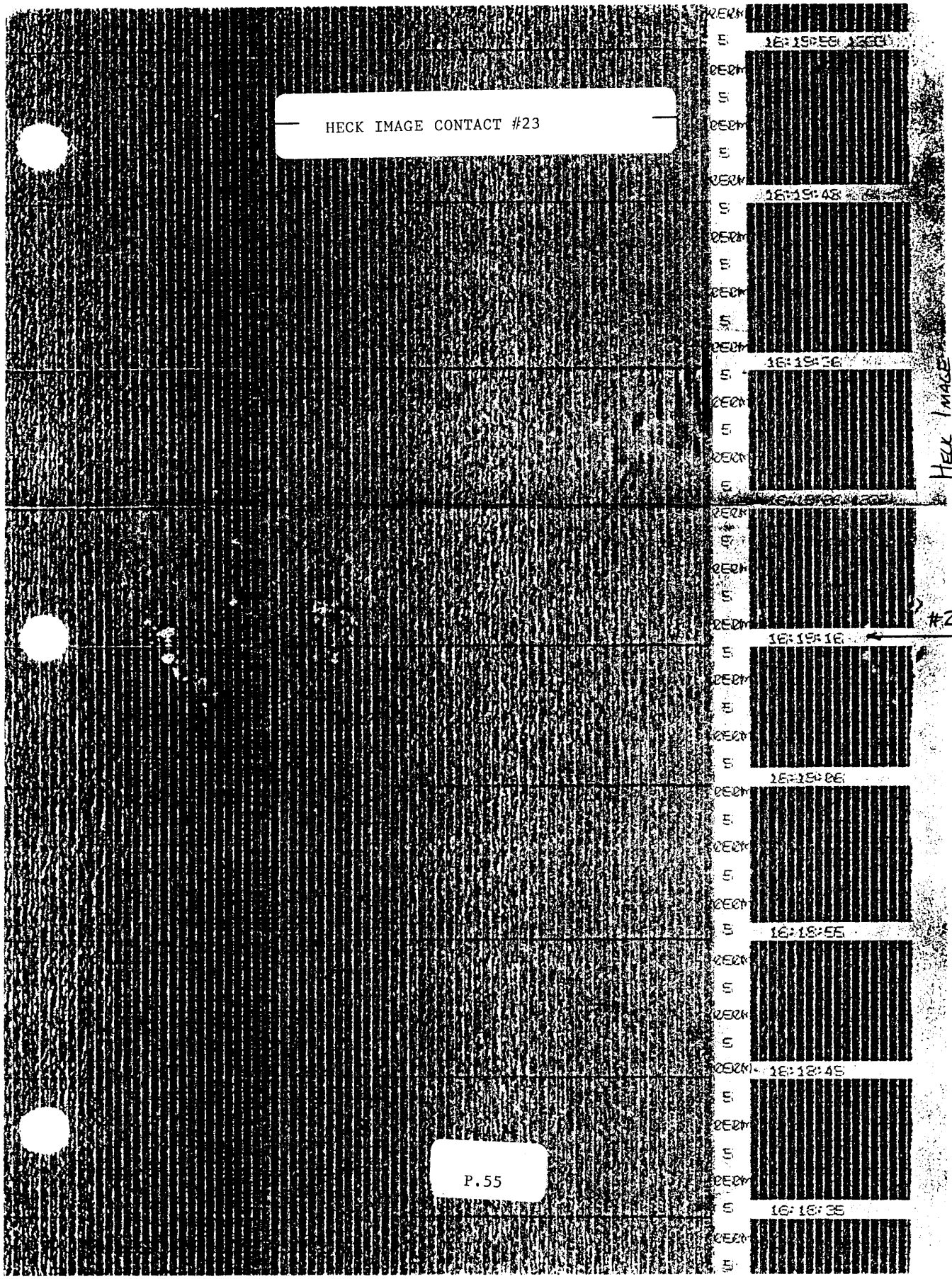
Ht on 2456.8 is 1.6 ft above bottom

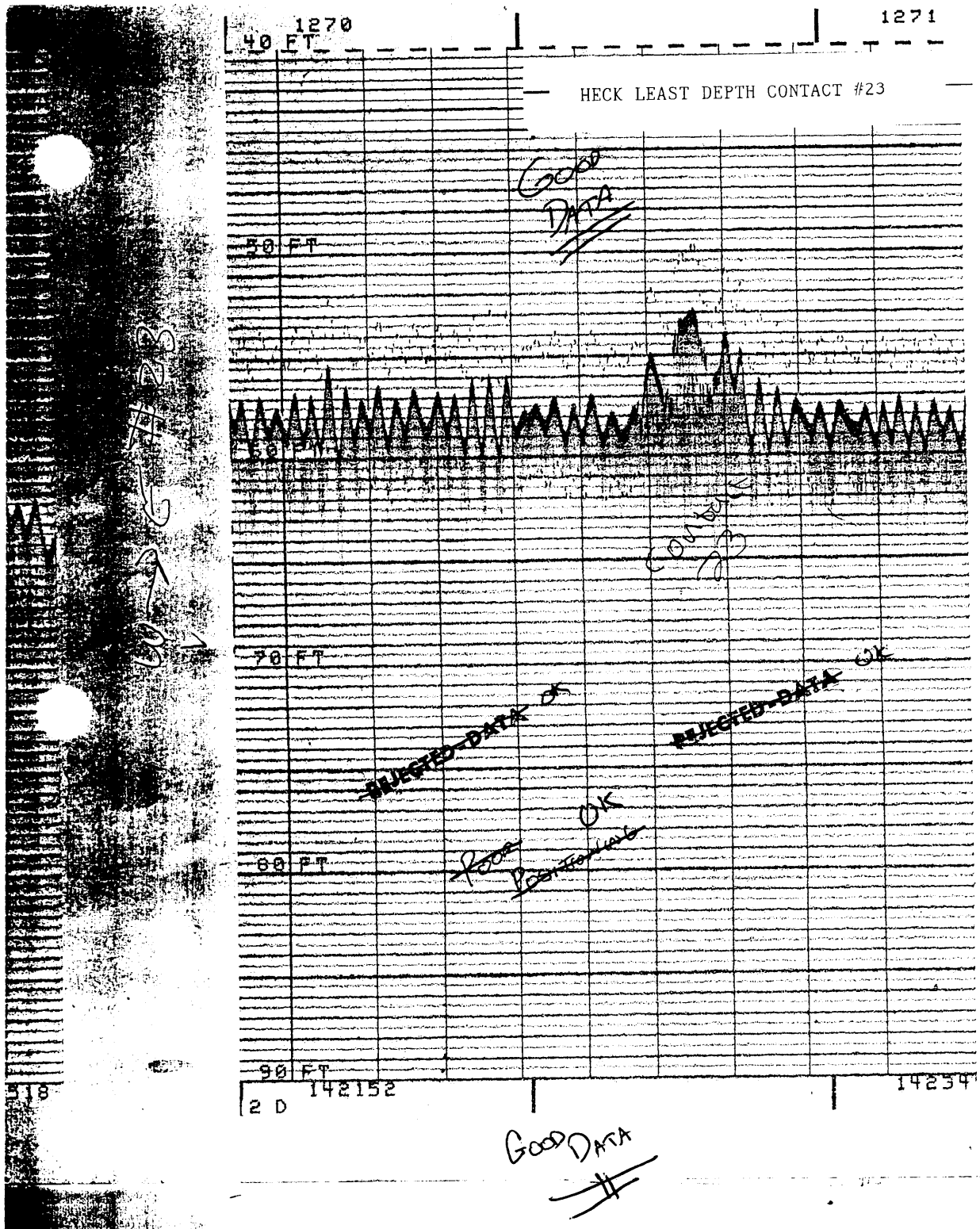
NFIN

WHITING IMAGE

WHITING IMAGE CONTACT #23




HECK IMAGE CONTACT #23
16:19:56
16:19:46
16:19:36
16:19:16
16:19:06
16:18:56
16:18:46
16:18:36
HECK IMAGE
#23


1270
1271
40 FT
HECK LEAST DEPTH CONTACT #23
Good Data
50 FT
60 FT
70 FT
REJECTED-DATA OK
REJECTED-DATA OK
Good Data OK
80 FT
90 FT
142152
14234
2 D
Good Data

1206		14:14:06	26391.9	7510.3	1010	392	58.3	5.6	-1.1(2C6A)
1213		14:14:20	26396.0	7480.2	980	396	57.9	5.6	.4(2C6A)
1220		14:14:35	26402.2	7445.5	946	402	56.4	6.1	.4(2C-A)
		INS 14.14.44					53.7		
1227		14:14:48	26408.8	7415.0	915	409	57.8	6.2	.5(2C-A)
1234		14:15:03	26420.8	7384.3	884	421	58.5	6.2	.9(2C-A)
1241	1269	14:15:18	26429.5	7347.8	848	430	60.2	6.2	.3(2C-A)

TOTAL MILES : .13
AVERAGE SPEED : 4.3 KT = 2.2 M/SEC

Last DSN : 1250

GOOD DATA
SCALED 1270.55
AS POSITION FOR #23

~~REJECTED DATA Poor Positioning But Good Depth Information~~

Reference Line: 0
First DSN : 1251

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
1252	1270	14:21:52	26314.3	7422.8	923	314	58.2	5.7	.8	(2C6A)
1259		14:22:08	26332.5	7423.8	924	333	58.0	5.6	1.2	(2C6A)
1266		14:22:21	26349.0	7424.0	924	349	56.9	5.6	.7	(2C6A)
1273		14:22:3[illegible]	26367.4	7422.9	923	367	57.5	5.6	3.8	(2C6A)
1280		14:22:50	26382.0	7423.8	924	38[illegible]	58.4	5.6	.6	(2C6A)
1287		14:[illegible]:03	26399.1	7424.7	925	[illegible]79	55.4	5.6	.7	(2C6A)
		→ 14:23:12	26408.1	7425.9	-	-	52.9	-	-	
1294		14:23:19	26417.9	7427.1	927	418	54.1	5.6	4.0	(2C6A)
1301		14:23:34	26434.4	7431.7	932	434	57.4	5.7	.7	(2C6A)
1308	1271	14:23:49	26453.0	7436.0	936	453	58.9	5.7	.7	(2C6A)

REJECTED DATA

REJECTED DATA

Fix 1270.65P
LEAST DEPTH
23

CONTACT #23
HIGH FREQ 52.9'
VEL CORR = 2.0'
DRAFT 6.9'
TIDE CORR ~~-0.9~~ -2.2
HEAVE 0.2'
CORRECTED DEPTH ~~bt.l~~ 59.8 predicted tides
59.1 observed tides

TOTAL MILES : .08
AVERAGE SPEED : 2.3 KT = 1.2 M/SEC

Last DSN : 1310

Reference Line: 0
First DSN : 1311

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
1312	1272	14:32:23	26467.5	7496.4	996	467	59.0	5.7	2.0	(2C6A)
1319		14:32:39	26447.5	7476.8	977	448	57.6	5.6	1.4	(2C6A)
1326		14:32:52	26434.1	7458.6	959	434	57.5	5.6	.4	(2C6A)
1333		14:33:07	26413.2	7438.5	939	413	56.9	5.6	1.0	(2C6A)
		INS 14 33 17					55.1			
1340		14:33:20	26399.4	[illegible]	[illegible]18	399	58.2	5.6	1.3	(2C6A)
1347		14:33:34	26386.9	7397.9	898	387	57.9	6.1	.6	(2C-A)

NAVISOFT 300 4.00 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 6 Nov 22:52:13

Easting.....: 26408.1_
Northing.....: 7425.9

Latitude.....: 040:08:00.761
Longtitude.....: 073:56:00.521

User 1 Caps Running

HELP Dump Alpha Dump Graphics

K.7 INVESTIGATION REPORT FOR CONTACT #24

AWOIS #7779

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 4.4 miles east of Sea Girt, NJ
Latitude: 40° 07' 59.460"
Longitude: 73° 55' 50.151"
Reported Depth: 61 feet (H-10290)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 234
Diver Investigations: DOY 236
Contacts: One

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. The HECK first located the contact at position 1265.1P. Divers investigated the contact and determined the least depth. A buoy was anchored on a short scope at the location of the least depth. Position 1280F was taken when the HECK was maneuvered alongside the dive buoy.

K.7 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER 24

DIVER INVESTIGATION SUMMARY :LT Tuell and LT(jg) Wilkes descended the marker buoy line to the bottom in approximately 80 feet of water. The marker buoy was moved to the wreck. The divers then swam along the wreckage to locate the highest point. The least depth measurement was made with the pneumofathometer.

CONTACT DESCRIPTION : Divers located an old metal wreck that was covered with coral and other sea life. The wreck had two distinct decks. The highest deck was about ~~10~~ 20 feet above the bottom. The least depth was measured on a rail on the upper deck. No identifying markings were found on the wreck.

LEAST DEPTH DETERMINATION :

Date of measurement: 24 August 1989 (DOY 236)
Time (UTC): 14:54 Pos # 2005

Average pnumofatho. depth: 55.2 feet
PREDICTED tidal corrector: ~~-1.8~~ -2.4 feet
52.8
Least depth: ~~53.4~~ feet predicted tides
52.1 observed tides (drive)
51.4 observed tides (echogram)
(Pos # 1280)

POSITION DETERMINATION :

Fix number: 1280.0F (also Pos # 2005)
Number of LOP's: 4
Maximum residual: 1.2
Error circle radius: 5.6

Easting: 26572.0
Northing: 7278.0

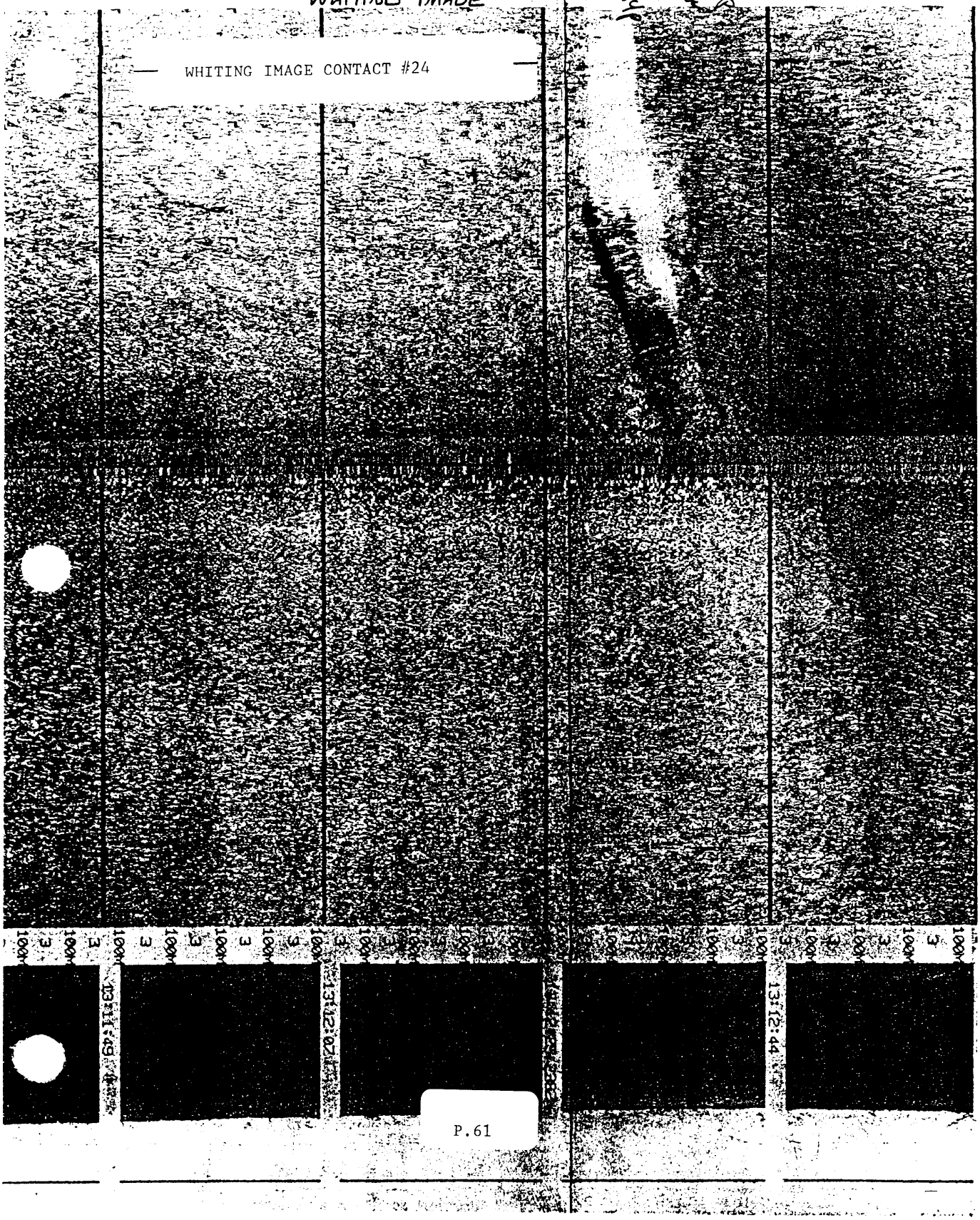
Latitude: 040° 07' 55.965"
Longitude: 073° 55' 53.599"

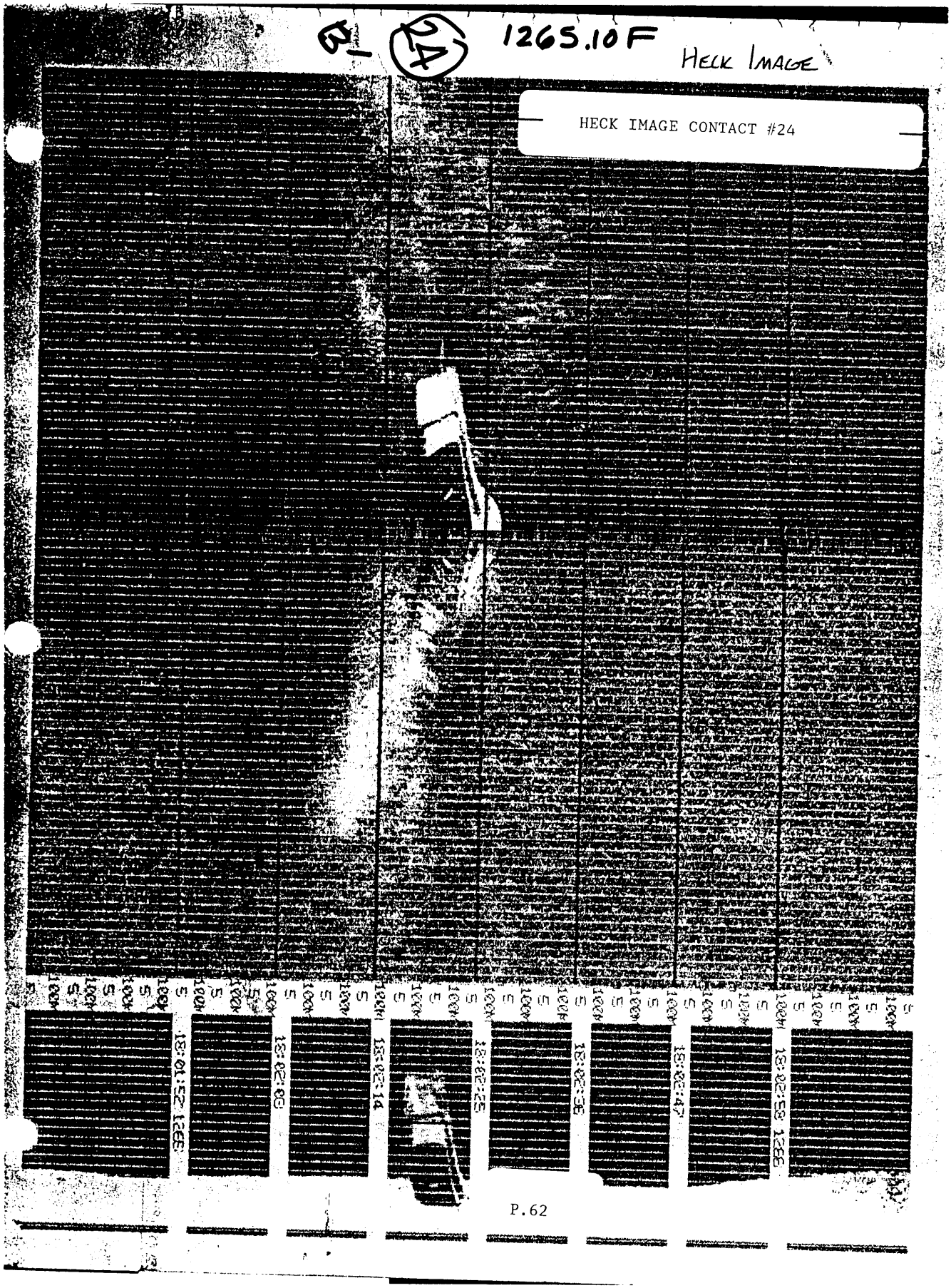
Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
	15503.8	26905.9	43508.4	59774.0

RECOMMENDATIONS : Contact 24 is shown on prior survey H-10290 as a 61 foot obstruction. The contact was listed in the contact abstract as "WRECK" and was recommended for diver investigation. ✓

The contact lies approximately 4.4 miles offshore and is 0.3 miles west of the 60 foot depth contour. The wreck is not charted, however it is located within a "fish haven - obstructions" with an authorized minimum depth of 50 feet. ✓
The fish haven is AWOIN 6825.
Because this wreck is deeper than the authorized minimum depth for the fish haven, HECK recommends that the wreck not be charted. Concur
The obstruction covered 61 feet on H-10290 is superseded.
Do not chart the wreck covered 51 feet at MLLW or found on this survey, retain the fish haven as charted.
See Eval Rpt, sects 6 & 7b.
See sheet 3 of 4.

Contact #24 6.3 'Wreck
WHITING IMAGE




B1
24
1265.10F
HECK IMAGE
HECK IMAGE CONTACT #24

CB

DIVING OPERATIONS
C-147

DATE: 8/24/89 1989

UNIT: NOAA SHIP HECK S591
AWOIS ITEM #
TARGET # 24

LOCATION: MIDDLE ATLANTIC COAST

DIVE MASTER: LT. G. TUELL
TENDERS: AB. LEWIS
C.B. MICKLE

DIVERS: TUELL
WILKES

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: _____ FT.
MAX TIME : _____ MIN.
AVERAGE LEAST DEPTH: 55.2 FT.
DEPTH: (1) 55.2 (2) 55.2 (3) 55.2 LEAST DEPTH TIME : 10 : 35
+ 1/14 35 Z

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR _____ KTS _____
SEAS : DIR _____ FT _____
CURRENT : KTS _____

VISIBILITY: FT. _____
AIR TEMP: (C) _____
WATER TEMP: (C) _____

ALL TIMES LOCAL:

TANK PRESSURE: * DIVE TIME: * 06:55

DIVERS NAME #	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
Tuell				*IN 2730/2800		*DN 1015	26	80	
Wilkes				400/200 OUT*		1040 UP*	26	80	
2				*IN / OUT*		*DN / UP*			
3				*IN / OUT*		*DN / UP*			

55.2
55.2
55.2
55.2
55.2

POST DIVE COMMENTS: DIVERS DESCENDED BUOY LINE TO BOTTOM AT 80 FEET. VISIBILITY WAS ABOUT 5 FEET. DIVERS BEGAN A COUNTERCLOCKWISE CIRCLE SEARCH OF 30 METERS. DIVERS EVENTUALLY FOUND LARGE METAL WRECKAGE RISING AT LEAST 10 FEET. BUOY WAS MOVED TO WRECK. A SEARCH OF WRECK REVEALED THAT A SECOND, HIGHER DECK WAS THE HIGHEST POINT. DIVERS FOUND LEAST DEPTH TO BE A LIP ON GUNWHALE OF SECOND DECK. DEPTH WAS MEASURED BY ~~LEAD~~ PNEUMOFATHOMETER

Grady M. Tuell
DIVE MASTER SIGNATURE

TOTAL MILES : .08
AVERAGE SPEED : 2.7 KT = 1.4 M/SEC

Last DSN : 1420

1420	1276	14:49:04	26590.0	7298.6	799	590	67.4	5.6	-	1.6(2C6A)
1420	1277	14:52:02	26561.8	7274.8	775	562	67.9	5.6	-	3.0(2C6A)
1420	1278	14:52:07	26566.3	7269.5	770	566	68.7	6.1	-	1.3(2C-A)
1420	1279	14:52:25	26565.9	7243.0	743	566	67.5	5.6	-	.8(2C6A)
1420	1280	14:54:10	26572.0	7278.0	778	572	46.0 ~~42.2~~	5.6	-	1.2(2C6A)

DP# 24

Reference Line: 0
First DSN : 1421

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max	Res	Lop's
1422	1281	15:27:24	28641.4	8626.7	2127	2641	63.4	5.6	-	-	2.3(2C6A)
1429		15:27:40	28665.8	8654.2	2154	2666	63.1	5.5	-	-	1.0(2C6A)
		INS 15 27 53					58.4				
1436		PESSEL ~~15:27:57~~	~~28694.8~~	~~8675.9~~	~~2176~~	~~2695~~	~~46.2~~	~~5.5~~	~~-~~	~~-~~	~~4.9(2C6A)~~
1443		15:28:10	28716.4	8691.4	2191	2716	61.3	5.5	-	-	2.7(2C6A)
1450		15:28:23	28738.4	8704.2	2204	2738	61.3	5.5	-	-	1.6(2C6A)
1457	1282	15:28:39	28760.5	8719.6	2220	2760	60.5	5.5	-	-	.9(2C6A)

TOTAL MILES : .09
AVERAGE SPEED : 4 KT = 2.1 M/SEC

Last DSN : 1460

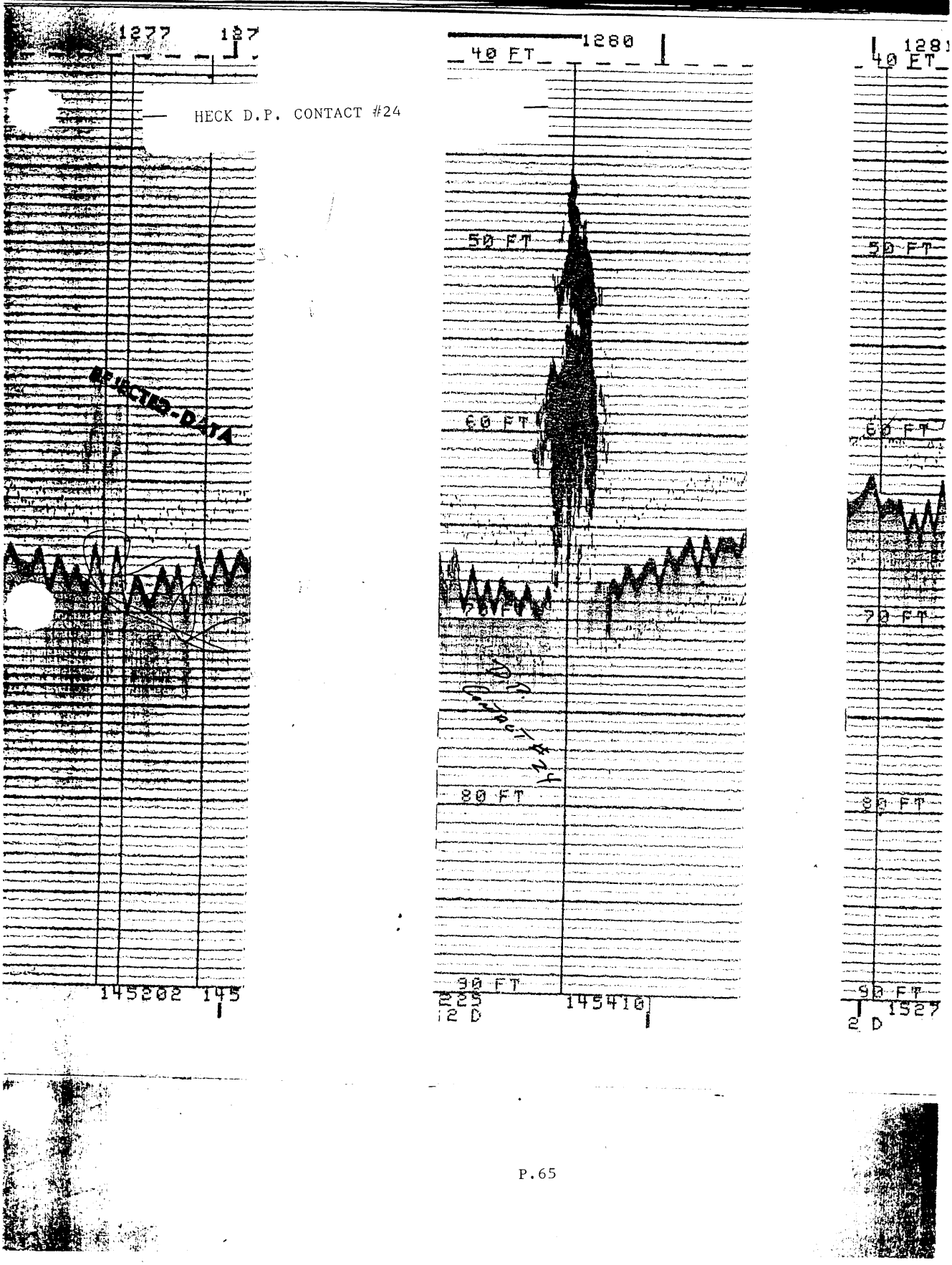
Echo sounder 46.0
Prop 6.9
Vel Corr 2.0
Tide - 2.5 observed
51.4 observed tide (echo sounder)
52.1 observed tides (drive)

Reference Line: 0
First DSN : 1461

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max	Res	Lop's
1462	1283	15:33:06	28690.5	8754.0	2254	2691	57.2	5.6	-	-	3.6(2C6A)
1469		15:33:22	28690.4	8725.9	2226	2690	59.0	5.5	-	-	2.7(2C6A)
1476		15:33:36	28688.3	8703.9	2204	2688	60.8	6.1	-	-	.1(2C-A)
1483		15:33:51	28688.4	8675.8	2176	2688	58.9	6.1	-	-	.2(2C-A)
1490		15:34:04	28688.0	8651.7	2152	2688	63.2	5.5	-	-	1.5(2C6A)
1497		15:34:21	28690.8	8620.4	2120	2691	64.8	5.5	-	-	3.2(2C6A)
1504	1284	15:34:36	28690.0	8592.4	2092	2690	63.4	5.6	-	-	1.4(2C6A)

TOTAL MILES : .09
AVERAGE SPEED : 3.5 KT = 1.8 M/SEC

Last DSN : 1510


1277
HECK D.P. CONTACT #24
REJECTED-DATA
145202
1280
40 FT
50 FT
60 FT
70 FT
80 FT
90 FT
145410
1281
40 FT
50 FT
60 FT
70 FT
80 FT
90 FT
1527
2 D

24

NAVISOFT 300 2.45 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 9 Oct 16:01:25

Easting.....: 26572.0
Northing.....: 7278.0

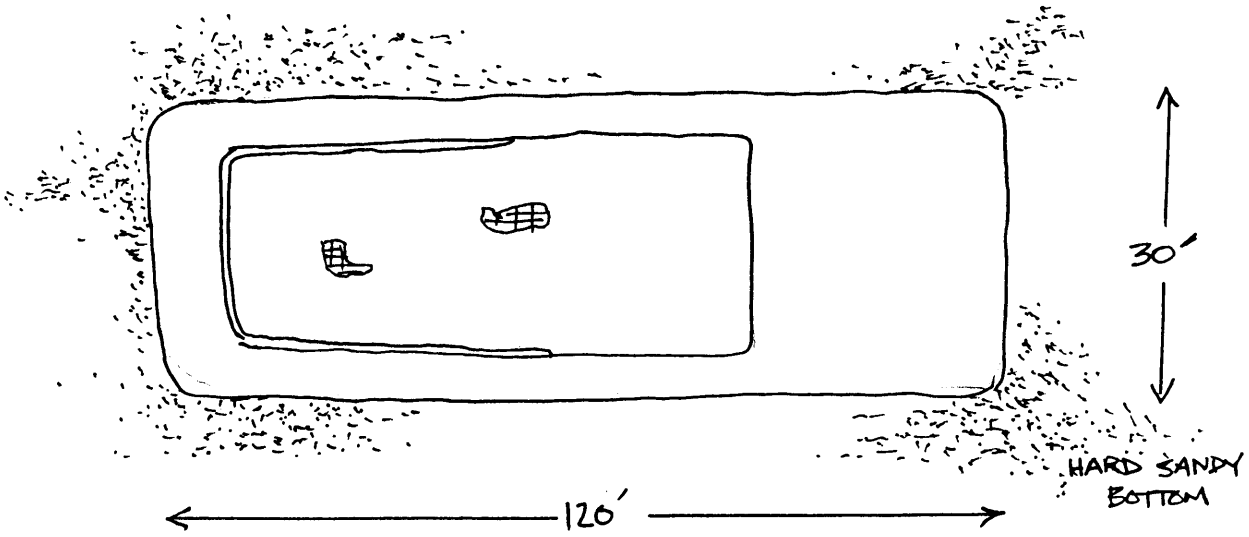
Latitude.....: 040:07:55.965
Longtitude.....: 073:55:53.599

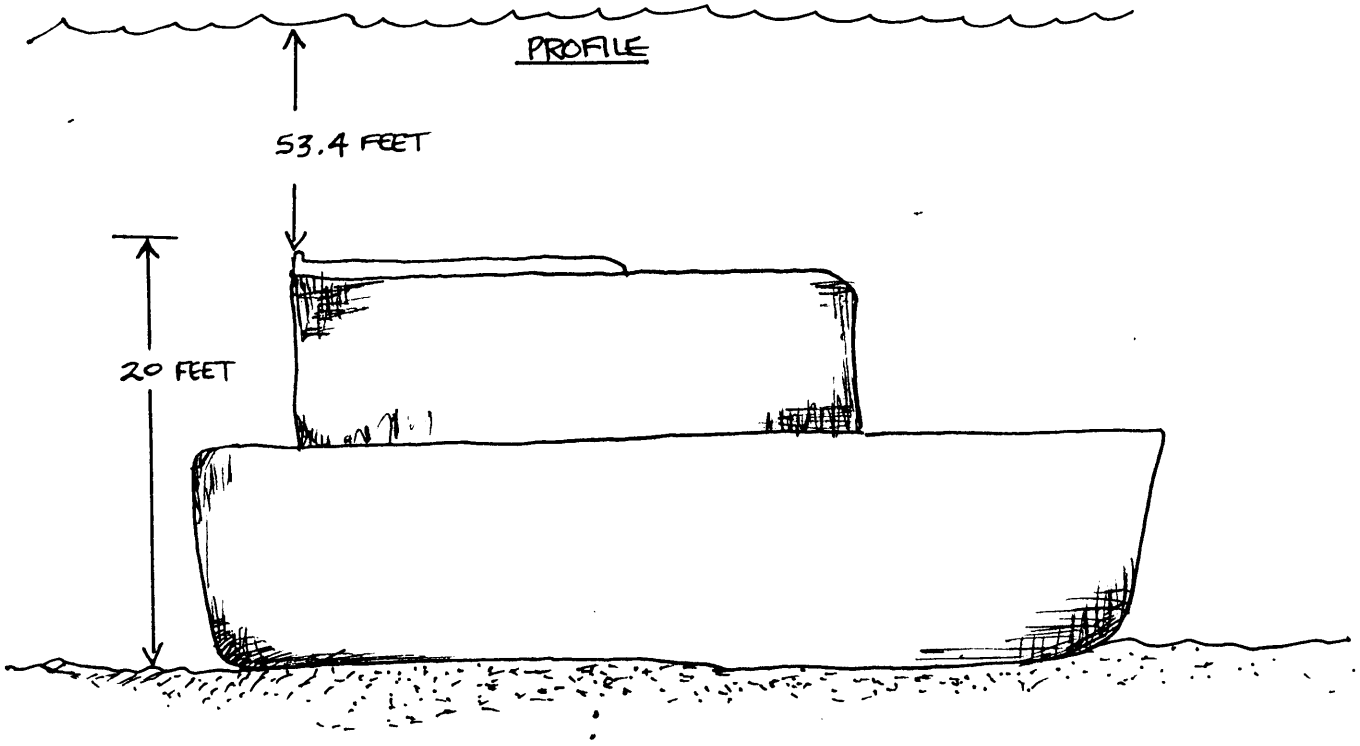
Day	Time	Tide Corr. Units FEET
236	14:00	-1.3
236	14:06	-1.4
236	14:12	-1.4
236	14:18	-1.5
236	14:24	-1.6
236	14:30	-1.7
236	14:36	-1.8 ←
236	14:42	-1.9
236	14:48	-2.0
236	14:54	-2.1
236	15:00	-2.2
236	15:06	-2.3
[illegible]	15:12	-2.4 ←
[illegible]	15:18	-2.5
236	15:24	-2.6
236	15:30	-2.7
236	15:36	-2.8
236	15:42	-2.9
236	15:48	-3.0
236	15:54	-3.1

Contact #24 Corrector

This table does not include the zoning time difference. Add 40 minutes for the correct value (-2.4)

CONTACT 24





K.8 INVESTIGATION REPORT FOR CONTACT #26

AWOIS # 1517

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 2.8 NM east of Avon, NJ
Latitude: 40° 11' 38.437"
Longitude: 73° 56' 47.494"
Reported Depth: 53 feet (H-10290)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 229
Diver Investigations: DOY 229
Contacts: One

A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. The HECK first located the contact at position 1153.35P. A marker buoy was deployed at position 1160F. Divers investigated the contact and determined the least depth. The dive buoy was moved to the location of the least depth and anchored of a short scope. Position 1162.0F was taken as the HECK was maneuvered alongside the dive buoy.

K.8. CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER 26

DIVER INVESTIGATION SUMMARY : ENS Bonnah and ENS Weiner descended the marker buoy to the bottom in approximately 70 feet of water. The visibility was excellent (40-60 feet) and allowed the divers visually locate a wreck which rose 15 feet off of the bottom. The marker bouy was moved to the highest point and the least depth was determined by leadline.

CONTACT DESCRIPTION : Divers located a rusted but intact capsized automobile and passenger ferry. The ferry measured approximately 80 feet long by 40 feet wide. Contact with local divers revealed that this wreck is the remains of the ferry VEGA. The wreck rose approximately 15 feet off the bottom. The surrounding bottom was sand.

LEAST DEPTH DETERMINATION :

Date of measurement: 17 August 1989 (DOY 229)
Time (UTC): 14:42 Pos # 2001

Average leadline depth: 58.0 feet
PREDICTED tidal corrector: ~~-4.2~~ 3.2 feet
54.8
Least depth: ~~53.3~~ feet predicted tides
55.1 feet observed tides

POSITION DETERMINATION :

Fix number: 1162.0F (also Pos # 2001)
Number of LOP's: 2
Maximum residual: 0.1
Error circle radius: 7.7

Easting: 25302.6
Northing: 14150.5

Latitude: 040° 11' 38.791"
Longitude: 073° 56' 47.207"

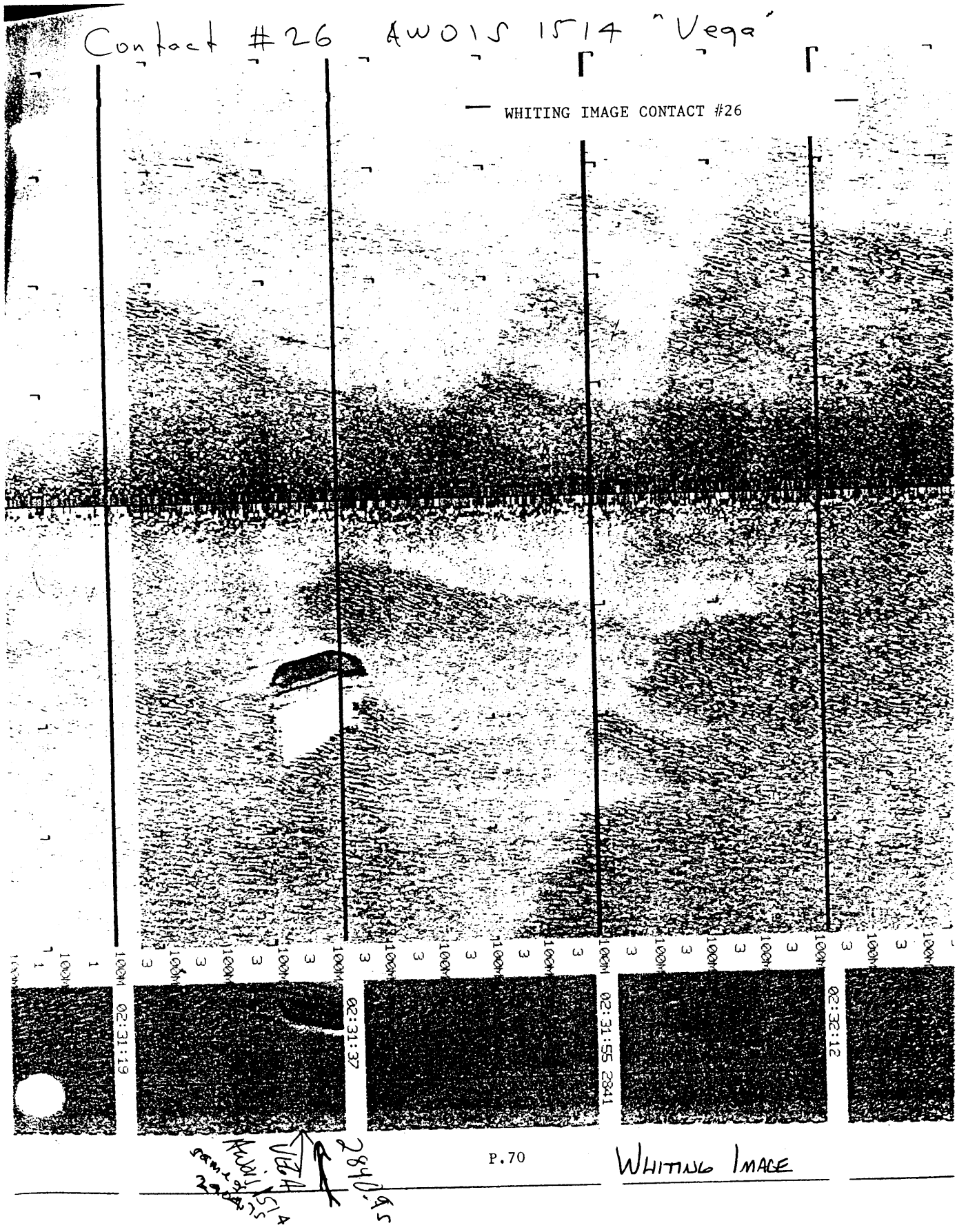
Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
	15507.0	26921.6	43546.9	59788.9

RECOMMENDATIONS : Contact 26 is shown on prior survey H-10290 as a wreck with a 53 foot depth. The contact was listed in the contact abstract as "WRECK" and was recommended for diver investigation. An obstruction covered 54 feet at MLLW was found on H-10290. A submerged wreck covered 53 feet at MLLW was brought forward from FE-22-1 (1957-58) WD (a dive depth) to H-10290. The contact lies approximately 2.8 miles offshore. The contact is charted as a wreck with least depth of 53 feet. The Project Instructions state that this wreck is probably AWOIS 1514. HECK divers made a positive identification of the wreck as the ferry in question. This AWOIS item is considered resolved. Concur

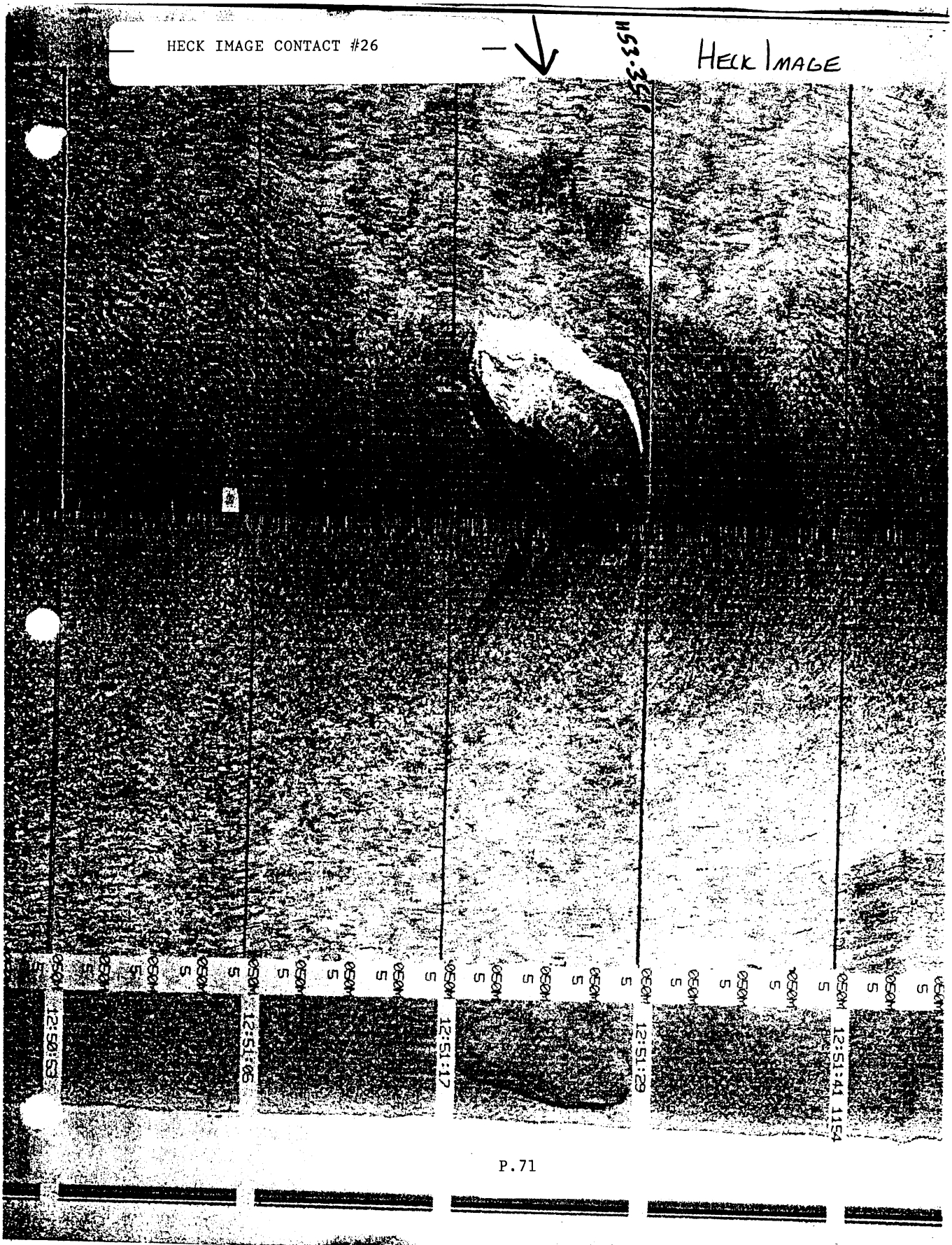
Do not concur.

The HECK recommends that the contact remain as charted: wreck with known depth of 53 feet The wreck should be charted at the position determined in this survey. Concur, that it should be charted at the position determined in this survey. The submerged wreck covered 53 feet at MLLW from FE-22-1 and shown on H-10290 is superseded, Chart the submerged wreck covered 55 feet at MLLW as found on this survey.

Contact #26 AWOIS 1514 "Vega"



WHITING IMAGE


HECK IMAGE CONTACT #26
H53-35
HECK IMAGE
12:50:53
12:51:05
12:51:17
12:51:29
12:51:41

Por # 2001

CB

DIVING OPERATIONS
C-147
E 10-12-89 W(F)

DATE: 8/17 1989

LOCATION: MIDDLE ATLANTIC COAST

UNIT: NOAA SHIP HECK S591
AWOIS ITEM #
TARGET # # 26

DIVE MASTER: LT.G.TUELL
TENDERS: AB.LEWIS
C.B.MICKLE

DIVERS: ENS. WEINER
ENS. BANNAH

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: FT.
MAX TIME : MIN.
AVERAGE LEAST DEPTH: FT.
DEPTH: (1) (2) 58.0 (LEADLINE) (3) LEAST DEPTH TIME : ~~14 : 21~~ 10 42
+4
14 42 Z

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR KTS
SEAS : DIR FT
CURRENT : KTS

VISIBILITY: FT. 40
AIR TEMP: (C)
WATER TEMP: (C)

1042 1 diver up

58' L Line

ALL TIMES LOCAL:

TANK PRESSURE:* DIVE TIME:*

#	DIVERS NAME	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
1	Lee				*IN ~~2550~~ 2550 2250		*DN 0953	:19 17	72' ~~700~~	E
	Hank				700 / 1000 OUT*		1013 UP*	19	75'	E
2	Hank			23	*IN 2800 / 2650		*DN 1032	:15	68'	I
	Lee			23	1500 / 1500 OUT*		1048 UP*	:14	72'	I
3					*IN / OUT*		*DN / UP*			

D | S
44.0 | 44.0
50.0 | 50.0
48.2 | 48.6
56.2

60 / 24 / :36
100 / 29 / :71 soi

1 = 20 MIN.
2 = 16 MIN.
E = 36 MIN. e 80' = I

1348
1048
Δ = 3 HRS SI.
= NEW GRP "D"

POST DIVE COMMENTS: 560 went down buoy line. Visibility was outstanding (>40 feet) we saw a large ferry upside down in a hard ~~stand~~ sand bottom. Least depth was taken on a skeg that was broken & bent up

Depth measured by leadline

DIVE MASTER SIGNATURE

P.72

Contact #26

NAVISOFT 300 4.00 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 5 Nov 21:26:36

sting.....:	25302.6
Northing.....:	14150.5
Latitude.....:	040:11:38.791
Longtitude.....:	073:56:47.207

Day	Time	Tide Corr. Units FEET	
229	14:00	-4.9	
229	14:06	-4.9	
229	14:12	-4.9	
229	14:18	-4.8	
229	14:24	-4.8	
229	14:30	-4.8	
229	14:36	-4.7	
229	14:42	-4.7	← Contact #26 Corrector
229	14:48	-4.6	
229	14:54	-4.6	
229	15:00	-4.5	
229	15:06	-4.5	
229	15:12	-4.4	
229	15:18	-4.3	
229	15:24	-4.3	
229	15:30	-4.2	
229	15:36	-4.1	

Disregard this table. Tides used do not consider zoning time difference and are for Day 245 not Day 229

157		12:58:30	25210.8	14398.9	7899	-789	62.7	7.2	.7(26B-)
162		12:58:43	25190.2	14382.5	7883	-810	61.5	7.8	0.0(26--)
167		12:58:55	25167.2	14368.3	7868	-833	62.1	7.8	0.0(26--)
172		12:59:07	25146.8	14352.1	7852	-853	62.0	7.7	.1(26--)
177		12:59:19	25126.9	14336.0	7836	-873	62.9	7.9	0.0(26--)
182	1157	12:59:30	25110.0	14317.2	7817	-890	62.2	7.9	.1(26--)
187		12:59:43	25092.0	14298.6	7799	-908	63.1	7.9	.1(26--)
192	1158	12:59:54	25075.4	14278.2	7778	-925	62.2	7.9	0.0(26--)

LE

TOTAL MILES : .18
AVERAGE SPEED : 4 KT = 2.1 M/SEC

Last DSN : 200

BUOY DROP #26

200	1159	13:16:13	25305.7	14139.6	7640	-694	52.6	7.7	0.0(26--)
200	1160	13:16:18	25303.3	14145.7	7646	-697	39.3	7.7	0.0(26--)

~~200 1161 14:19:19 25297.8 14149.3 7649 -702 55.4 7.8 0.0(26--)~~

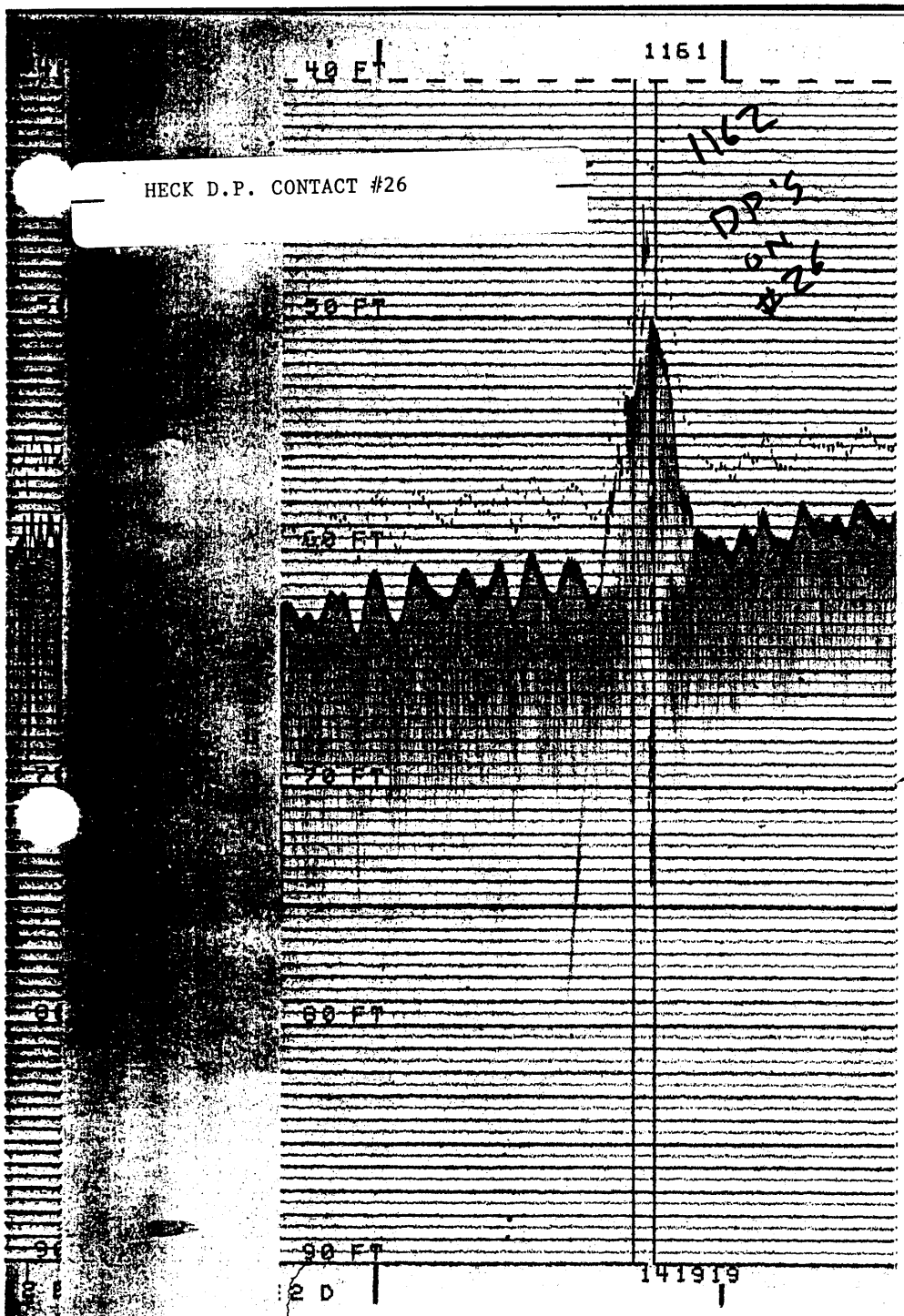
200	1162	14:19:23	25302.6	14150.5	7651	-697	~~50.0~~ 50.0 9999.9	7.7	.1(26--)

DP ON CONTACT #26

Echosounder 50.0
Draft 6.9
Vel. Corr. 2.0
Tides -3.3

55.6 Each observed tider (echosounder)

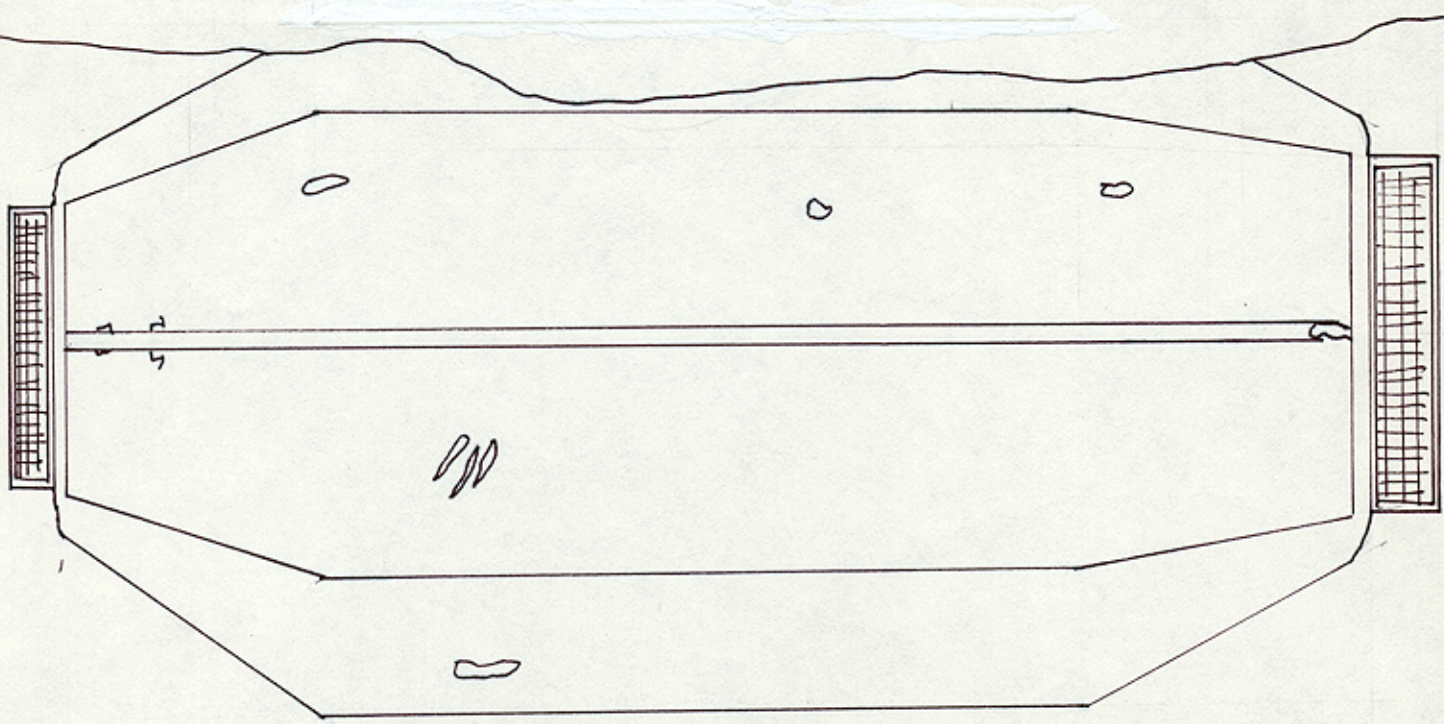
55.1 Each observed tider (dive, Pier #2001)



GOING TO RUN SEVERAL E/W & N/S LINES OVER CONTACT #27.

O/C ~300'

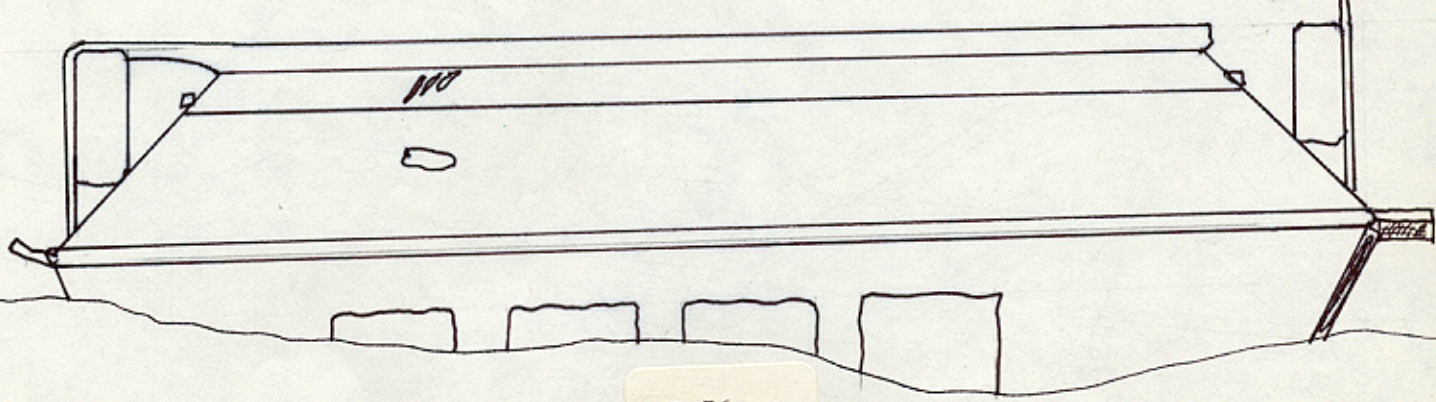
CONTACT #26
HE 10-12-89 W "F"
CAPSIZED FERRY



Leadline 58.0 ft
Tides 3.2
54.8 feet predicted tides
57.1 feet observed tides

57.1
~~55.3~~ LEAST DEPTH
MLLW

BROKEN SKEG



K.9 INVESTIGATION REPORT FOR CONTACT #27

no AWOIS correction

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 2.7 NM east of Avon, NJ
Latitude: 40° 11' 45.862"
Longitude: 73° 56' 54.943"
Reported Depth: 60 feet (H-10290)

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 229
Diver Investigations: none
Echo Sounder Investigation: DOY 229
Contacts: none
Fixes: 1150-1158 SSS, 1163-1170 Hydro

A 50 meter range scale SSS investigation and an echosounder investigation was conducted over the coordinates provided by WHITING. The HECK located two minor contacts at position 1157.5P. Additional hydrograhpy (echosounder development) was run to further determine the significance of the contacts.

K.9 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER 27

ECHOSOUNDER INVESTIGATION SUMMARY : The HECK ran a "star pattern" of echosounder lines over the WHITING's coordinates. A contact was located at position 1169.36F. This position was within 20 meters of the SSS contact. Since the SSS records revealed no other contacts in the immediate area, HECK belives that 1169.36F is the SSS located contact.

CONTACT DESCRIPTION: The SSS record reveals that the contact is, in fact, two discrete contacts. The contacts appear to be rocks rising about 3 feet from the bottom typical of other contacts that HECK personnel investigated in the area. The position of the shoalest rock is 1169.36F.

LEAST DEPTH DETERMINATION : The least depth was determined by echosounder.

Date of maesurement: 17 August 1989 (DOY229)
Time of measurement: 14:48 GMT

	55.0
Echosounder depth:	~~57.5~~ feet
Velocity corrector:	2.0
Draft corrector:	6.9
Predicted tide:	~~-2.5~~ -3.1
Heave:	0.0
Corrected depth	~~63.9~~ feet 60.8 predicted tides
	61.4 observed tides

POSITION DETERMINATION : ~~None taken~~ Por # 1169/04

RECOMMENDATIONS : Contact #27 is shown on prior survey H-10290 as a 60 foot obstruction. The rocks that were identified as contact #27 lie outside the 60 foot depth curve. ✓

Contact #27 was determined, by this survey, to be rocks with heights of 2-3 feet. None of the rocks found are significant enough for charting. The HECK recommends that no action be taker for contact #27. Do not concur

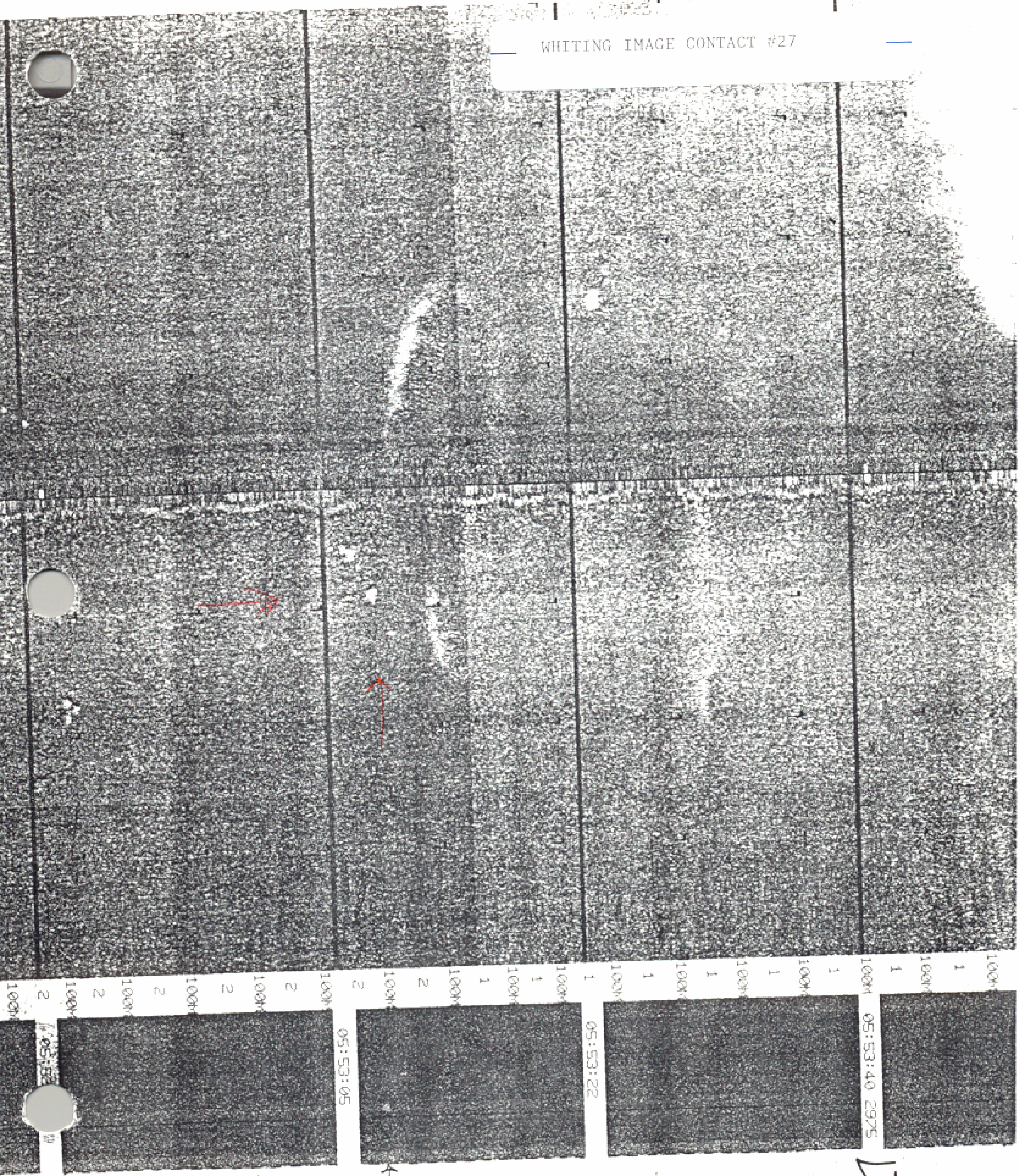
The obstruction covered 60 feet at MLLW on H-10290 is superseded by the 61-foot sounding found on this survey. Chart this area according to H-10290, less the superseded obstruction covered 60 feet at MLLW, supplemented by soundings from this survey.

See sheet 4 of 4.

Contact #27 8.3' Obstruction

Whiting Image

WHITING IMAGE CONTACT #27



2974.55

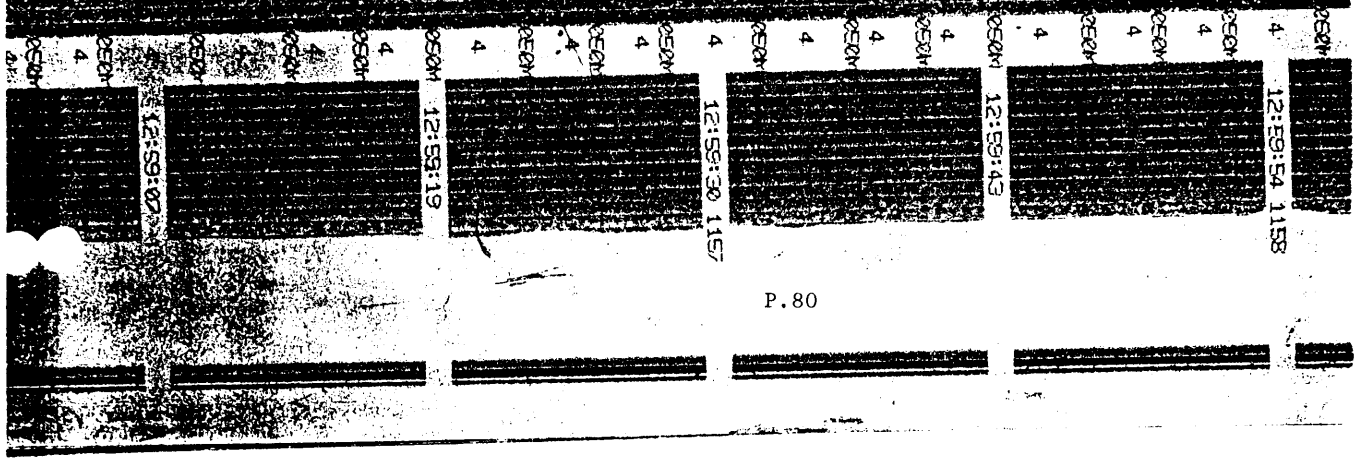
2909.55

P.79

LTCA

CONTACT #27 4.0' 3.2' 3.4'

HECK IMAGE CONTACT #27



Reference Line: 7860
First DSN : 321

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
322	1167	14:43:10	25202.6	14331.4	7831	-797	61.4	7.9	,	• 0.0(26--)
329		14:43:26	25176.0	14340.8	7841	-824	60.0	7.8	•	• 0.0(26--)
336		14:43:40	25147.2	14350.3	7850	-853	60.7	7.8	•	• 0.0(26--)
343		14:43:55	25120.5	14361.6	7862	-880	60.7	7.8	•	, 0.0(26--)
350		14:44:11	25089.5	14374.5	7875	-911	60.9	7.8	-	, 0.0(26--)
357		14:44:26	25061.7	14386.9	7887	-938	61.3	7.8	-	• 0.0(26--)
364	1168	14:44:43	25028.7	14403.5	7904	-971	61.9	7.2	-	.1.9(26B-)

TOTAL MILES : .11
AVERAGE SPEED : 4 KT = 2 M/SEC

Last DSN : 370

CONTACT # 27

Reference Line: 7860
First DSN : 371

DSN	FIX	Time	Easting	Northing	DAL	DOL	Depth	Ecr	Max Res	Lop's
372	1169	14:47:48	25027.5	14368.6	7869	-972	62.1	7.9	•	• 0.0(26--)
379		14:48:04	25053.2	14366.2	7866	-947	61.3	7.8	-	• .1(26--)
386		14:48:18	25078.0	14366.1	7866	-922	60.7	7.8	•	• .1(26--)
393		14:48:32	25103.2	14366.9	7867	-897	60.0	7.8	-	• 0.0(26--)
	1169.36F	14:48:42	25120.5	14366.9	-	-	~~57.5~~ 55.0	-		-
400		14:48:49	25132.0	14367.0	7867	-868	58.1	7.8	-	• .1(26--)
407		14:49:03	25158.0	14370.7	7871	-842	60.1	7.8	•	• 0.0(26--)
414	1170	14:49:20	25186.1	14377.4	7877	-814	60.7	7.2	•	• 1.8(26B-)

TOTAL MILES : .09
AVERAGE SPEED : 3.4 KT = 1.7 M/SEC

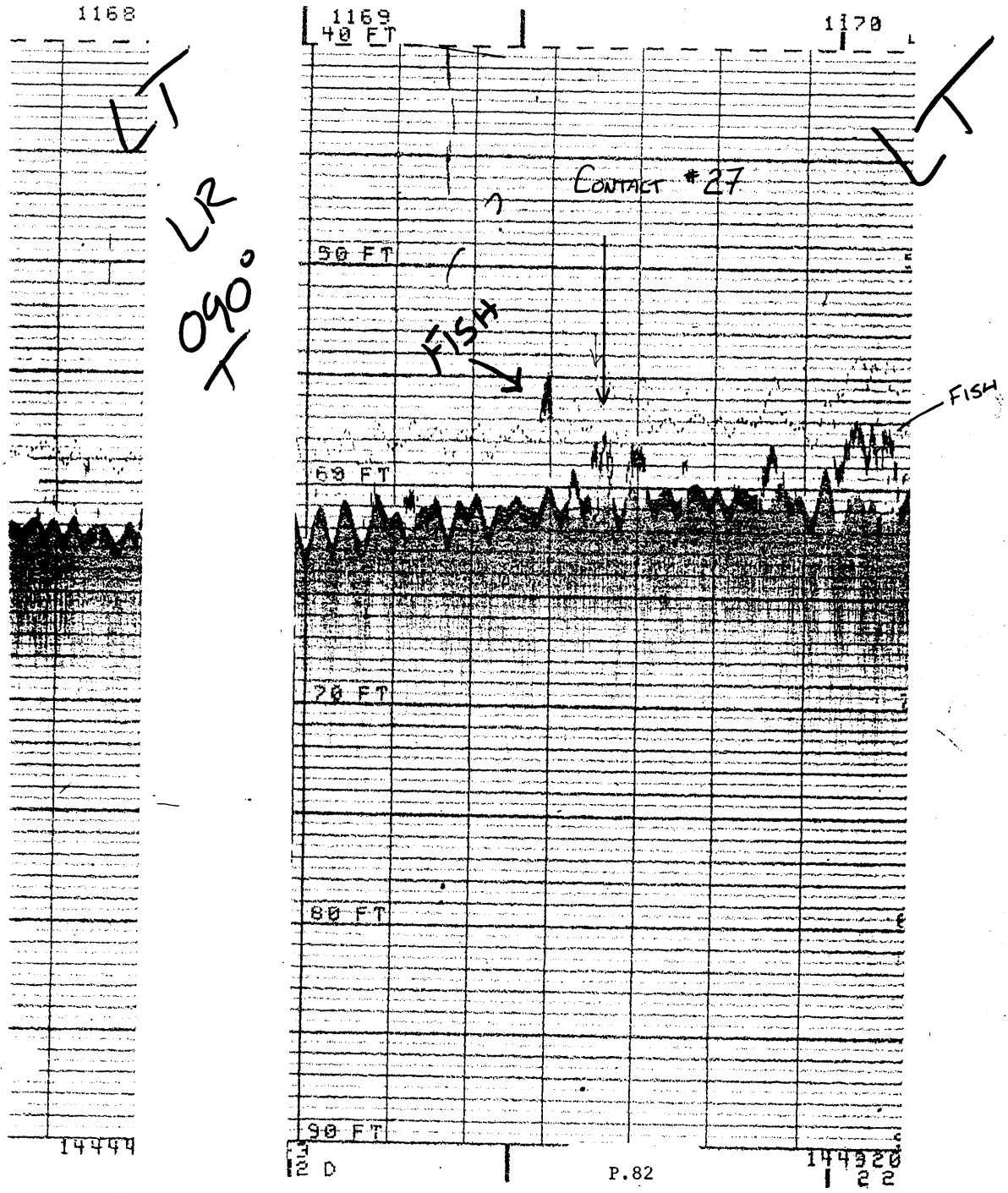
Last DSN : 420

HIGH FREQ DEPTH	~~57.5~~ 55.0
DRAFT	6.9
VELOCITY	2.0
TIDE	~~-2.5~~ -3.1
HEAVE	0.0
CORRECTED DEPTH	~~63.9~~ FEET
	60.8 predicted tides
	61.4 feet observed tides

LOP Crossings

Geometry

HECK LEAST DEPTH CONTACT #27



AWOIS #7780

K 10 INVESTIGATION REPORT FOR CONTACT #30

AREA OF INVESTIGATION :

State: New Jersey
County: Monmouth
Locality: 4.0 NM east of Sea Girt, NJ
Latitude: 40° 07' 44.080"
Longitude: 73° 56' 24.351"
Reported Depth: 54 feet (H-10290)

CONTACT DESCRIPTION : A 50 meter range scale SSS investigation was conducted over the coordinates provided by WHITING. The HECK first located the contact at position 1228.4P/S. Divers investigated the contact and determined the least depth. A buoy was anchored on a short scope at the location of the least depth. Position 1253 was taken as the HECK was maneuvered alongside the marker buoy.

SURVEY PROCEDURES :

Positioning: Falcon MiniRanger
Side Scan Sonar Search: DOY 234
Diver Investigations: DOY 234
Contacts: One

K.10.1 CONTACT INVESTIGATION REPORT CONTACT PLOT NUMBER 30

DIVER INVESTIGATION SUMMARY : LT Tuell and LT(jg) Wilkes descended the marker buoy to the bottom in approximately 70 feet of water. The visibility was good (15-20 feet) and allowed the divers to visually locate a wreck and then begin a circle search to locate the least depth. The marker buoy was moved to the wreck and placed on a short scope at the highest point. LT Tuell ascended with the leadline and made the reading while LT(jg) Wilkes held the weight on the wreck.

CONTACT DESCRIPTION : Divers located a wooden barge rising about 10 feet above a flat, sandy bottom. The barge was intact but, in a deteriorated condition. The wreck had a rounded bow section which was lower than the sides of the wreck. The least depth measurement was made on the gunwhale on the northeast corner of the wreck.

LEAST DEPTH DETERMINATION :

Date of measurement: 22 August 1989 (DOY 234)
Time (UTC): 18:20

Average leadline depth: 63.5 feet
PREDICTED tidal corrector: ~~-4.5~~ -3.9 feet
59.6
~~59.0~~ feet predicted MLLW
55.3 feet observed MLLW
(Pos# 1228/3)

POSITION DETERMINATION :

Fix number: 1253.0F 1228/02
Number of LOP's: 4
Maximum residual: 1.3
Error circle radius: 5.7

Easting: 25859.2
Northing: 6927.4

Latitude: 040° 07' 44.601" 40° 07' 43.87" N
Longitude: 073° 56' 23.709" 73° 56' 23.89" W

Loran-C Rates:	9960-W	9960-X	9960-Y	9960-Z
	15506.8	26908.8	43506.6	59772.3

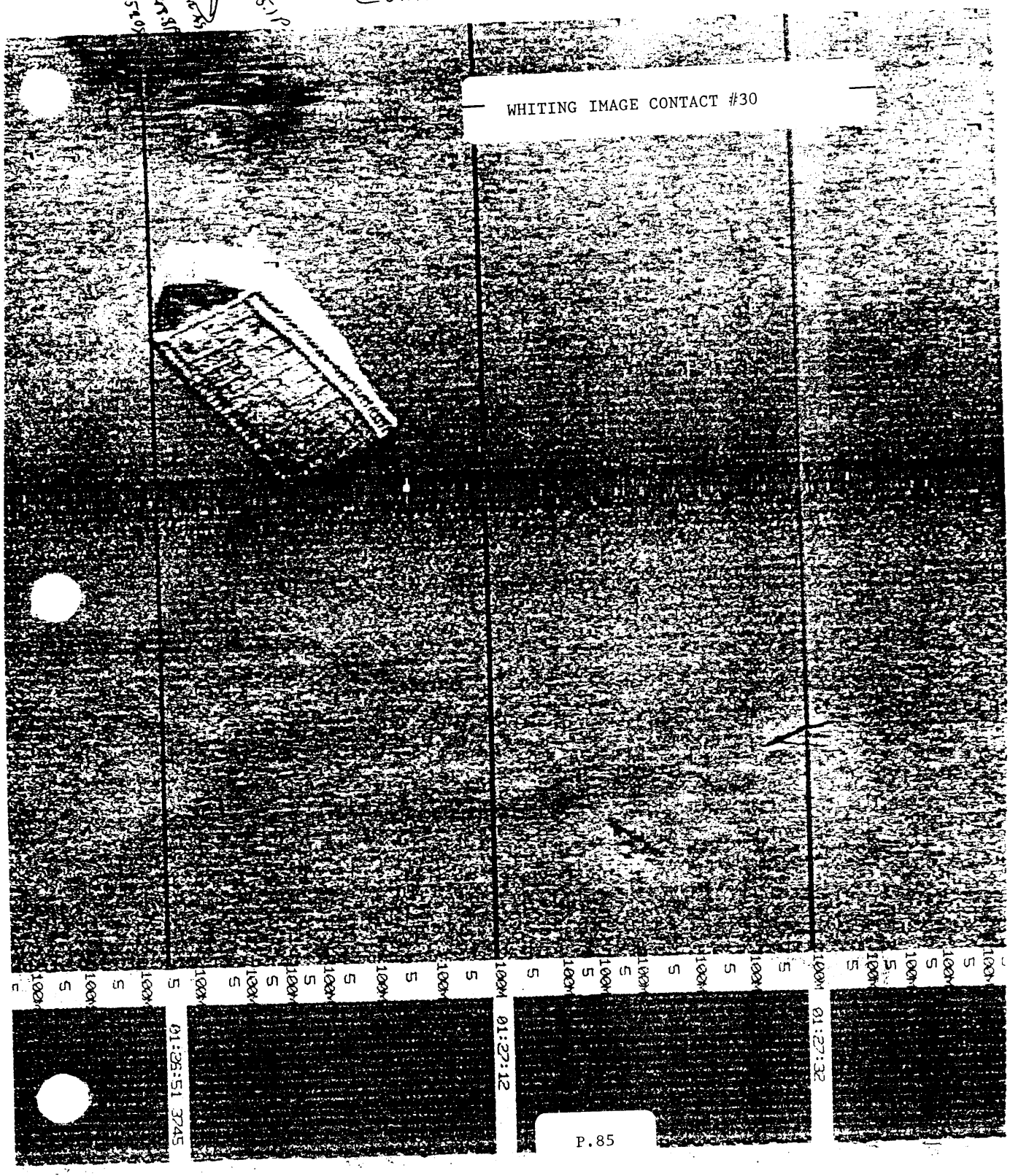
RECOMMENDATIONS : Contact 30 is shown on prior survey H-10290 as an obstruction with a depth of 54 foot. The contact was listed in the contact abstract as "WRECK" and was recommended for diver investigation. ✓

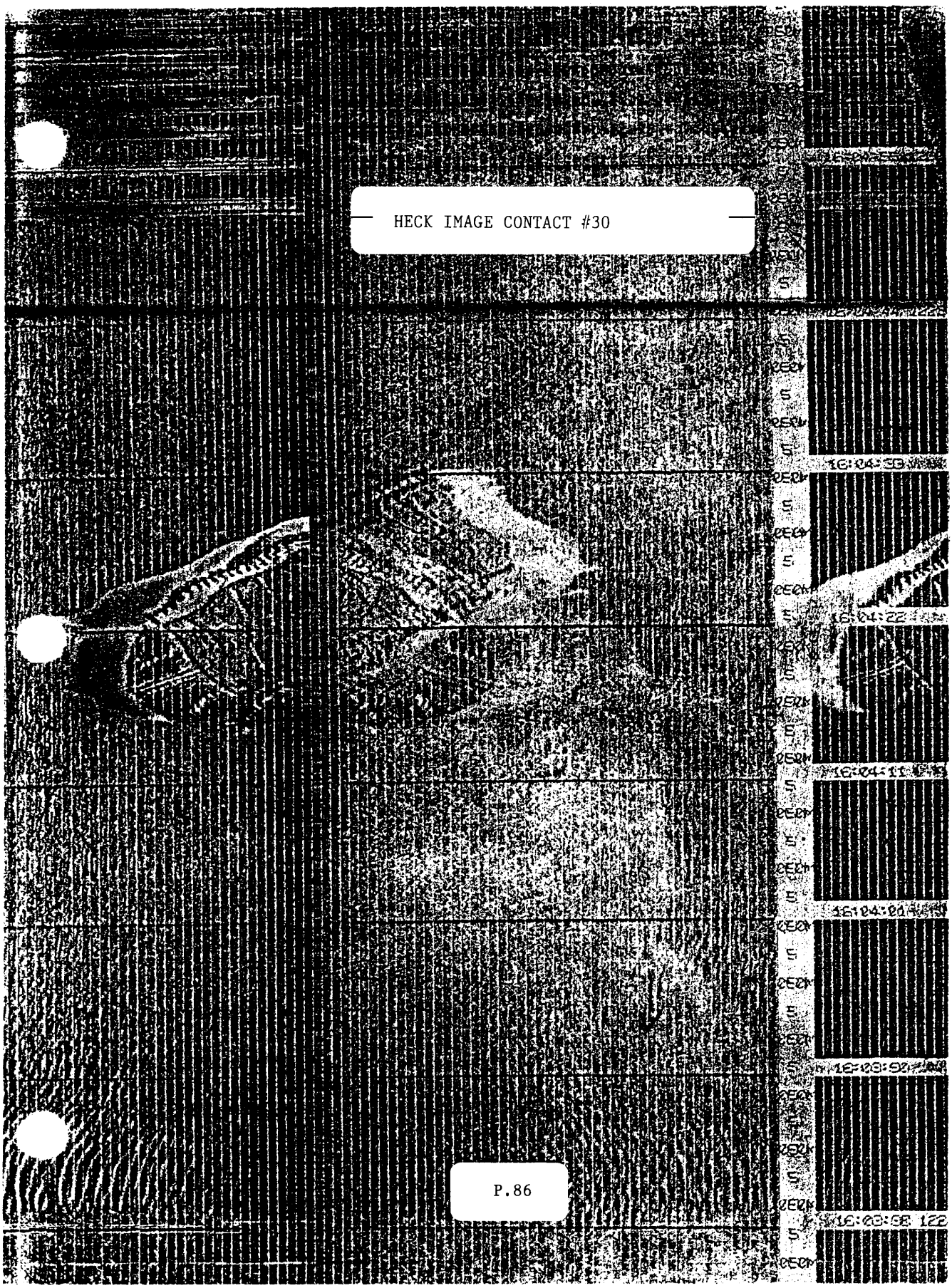
The contact lies approximately 4.0 miles offshore. The contact is not charted, however it is located within a charted "Fish Haven - Obstructions" with a minimum authorized depth of 50 feet. The fish haven is NOAA 6825 ✓

Because this wreck is deeper than the authorized minimum depth for the fish haven, the HECK recommends that the contact not be charted. Concur

The obstruction covered 54 feet at MLLW on H-10290 is superseded by the wreck covered 57 feet at MLLW found on this survey
See Eval. Rpt, sect 6876
See sheet 3 of 4.

Contact #30 13.5' Wreck Whiting Image





HECK IMAGE

CB

DIVING OPERATIONS
C-147

DATE: 8/22 1989

UNIT: NOAA SHIP HECK S591
AWOIS ITEM # 10-12-89
TARGET # 30

LOCATION: MIDDLE ATLANTIC COAST

DIVE MASTER: LT. G. TUELL ✓
TENDERS: AB. LEWIS ✓
C.B. MICKLE ✓

DIVERS: G. TUELL
D. WILKES

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: _____ FT.
MAX TIME : _____ MIN.
AVERAGE LEAST DEPTH: 63.5 FT.
DEPTH: (1) _____ (2) 63.5 (3) _____ LEAST DEPTH TIME : 14:20
LEADLINE

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR _____ KTS _____
SEAS : DIR _____ FT _____
CURRENT : KTS _____

VISIBILITY: FT. 15-20
AIR TEMP: (C) _____
WATER TEMP: (C) _____

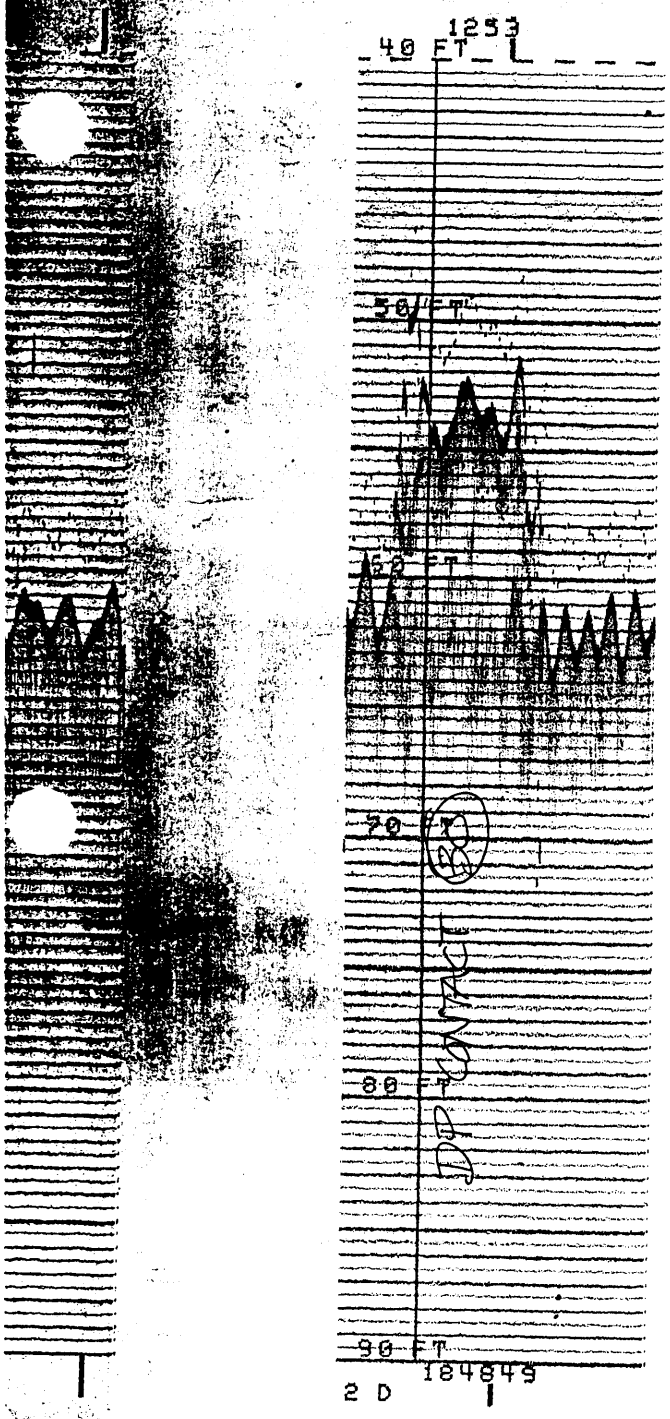
ALL TIMES LOCAL:

TANK PRESSURE: * DIVE TIME: *

DIVERS NAME #	SI	GROUP	RNT	*IN / OUT*	PRES. CHANGE	*DN / UP*	BOTTOM TIME	DEPTH	GROUP
TUELL				*IN 2800/2900	2500	*DN 1354	26	72	G
WILKES				300/700 OUT*	2200	1420 UP*	26	80	G
2				*IN _____		*DN _____			
				_____ OUT*		_____ UP*			
3				*IN _____		*DN _____			
				_____ OUT*		_____ UP*			

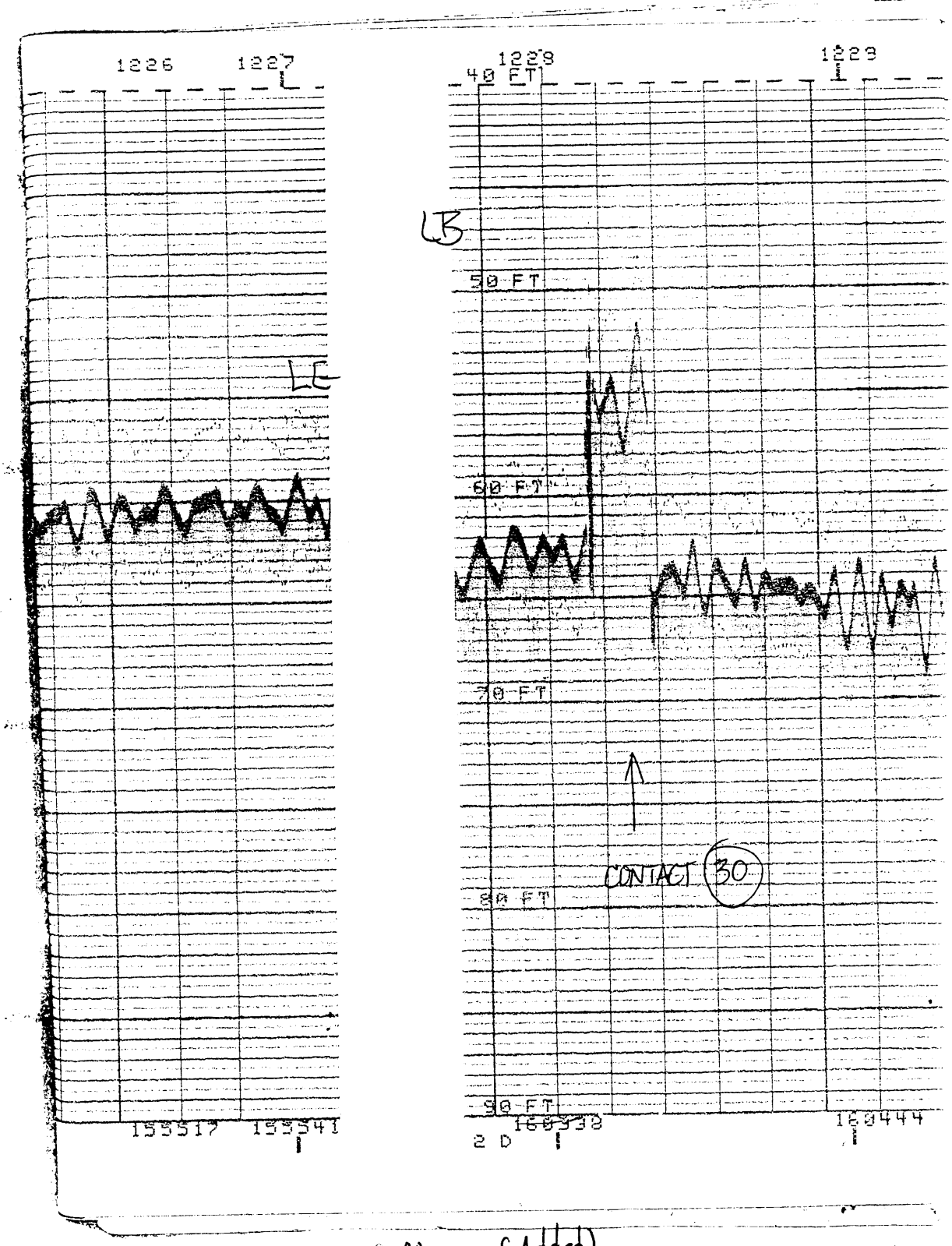
POST DIVE COMMENTS: DIVERS DECENDED BUOY TO SANDY BOTTOM AT 75 FEET. DIVERS SWAM NORTH ABOUT 20 METERS AND FOUND THE WRECK BEFORE BEGINNING A CIRCLE SEARCH. WRECKAGE WAS A LARGE WOODEN BARGE RESTING UPRIGHT. LEAST DEPTH WAS MEASURED BY LEADLINE AND WAS FOUND TO BE ON THE GUNWHALE, NEAR THE NORTHEAST CORNER.

Grady A. Tuell
DIVE MASTER SIGNATURE



HECK D.P. CONTACT #30

minimum depth is at
Port # 1229/03-


1226
1227
1228
1229
40 FT
LB
50 FT
LE
60 FT
70 FT
CONTACT
30
80 FT
90 FT
155517
155541
160444
2 D

p-88 a (Added)

1057		18:17:55	28659.6	8751.4	2251	2660	57.6	5.5	.9(2C6A)
1062	1251	18:18:07	28658.3	8774.8	2275	2658	57.9	5.6	1.5(2C6A)

TOTAL MILES : .09
AVERAGE SPEED : 3.6 KT = 1.9 M/SEC

LE

Last DSN : 1070

Contact... 2 T:181733 E: 28690.5 N: 8669.2 H: 0

~~1070 1252 18:40:35 R 25873.7 R 6889.9 390 -126 R 52.3 5.7 3.4(2C6A)~~

1070 1253 18:48:49 25859.2 6927.4 427 -141 ~~52.3~~ 51.4 5.7 1.3(2C6A)

DP ON CONTACT (30)

Por # 1253

51.4	echogram
6.9	draft
2.2	vel corr
-3.4	observed tide
57.1	feet MLLW

Por # 1223/03

51.6	echogram
6.9	draft
2.2	vel corr
-5.4	observed tide
55.3	feet MLLW

'AVISOFT 300 4.00 PRE-SURVEY: UTILITIES: MTM -> LAT/LON 7 Nov 02:57:52

Easting.....: 25859.2_
Northing.....: 6927.4

Latitude.....: 040:07:44.601
Longtitude.....: 073:56:23.709

Day	Time	Tide Corr. Units FEET
234	18:00	-4.7
234	18:02	-4.7
234	18:04	-4.7
234	18:06	-4.6
234	18:08	-4.6
234	18:10	-4.6
234	18:12	-4.6
234	18:14	-4.5
234	18:16	-4.5
234	18:18	-4.5
234	18:20	-4.5 ← Contact #30 Corrector
234	18:22	-4.4
234	18:24	-4.4
234	18:26	-4.4
234	18:28	-4.4
234	18:30	-4.3
4	18:32	-4.3
234	18:34	-4.3
234	18:36	-4.2
234	18:38	-4.2
234	18:40	-4.2

This table does not include the time difference in zoning (-40 minutes). The correct predicted tide for 1820Z = -3.9 feet

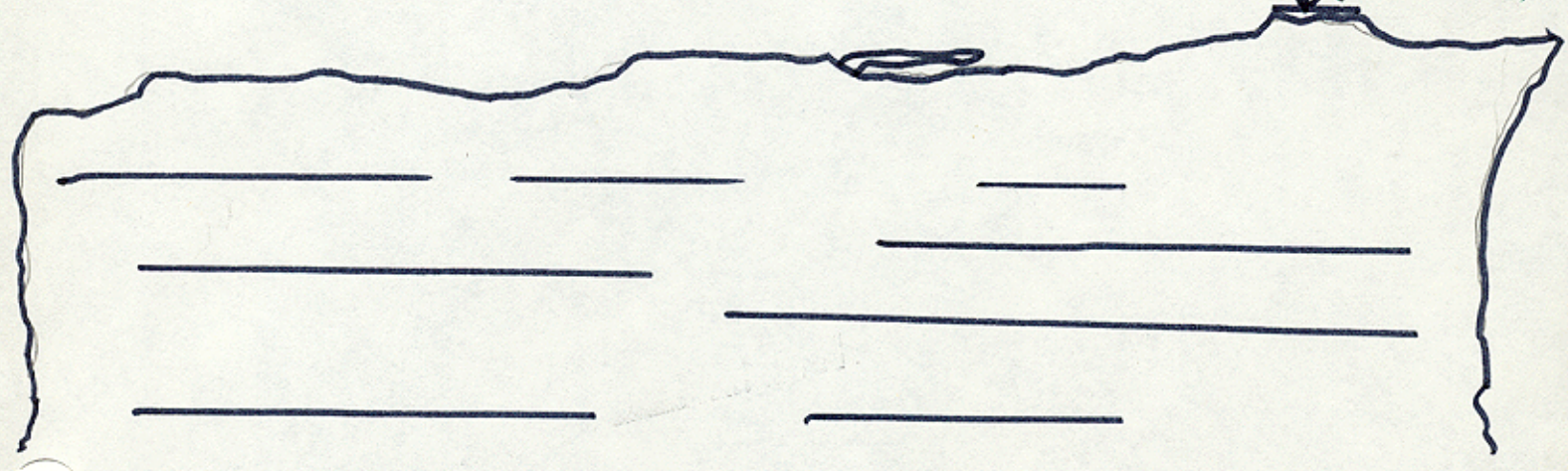
Surface #30

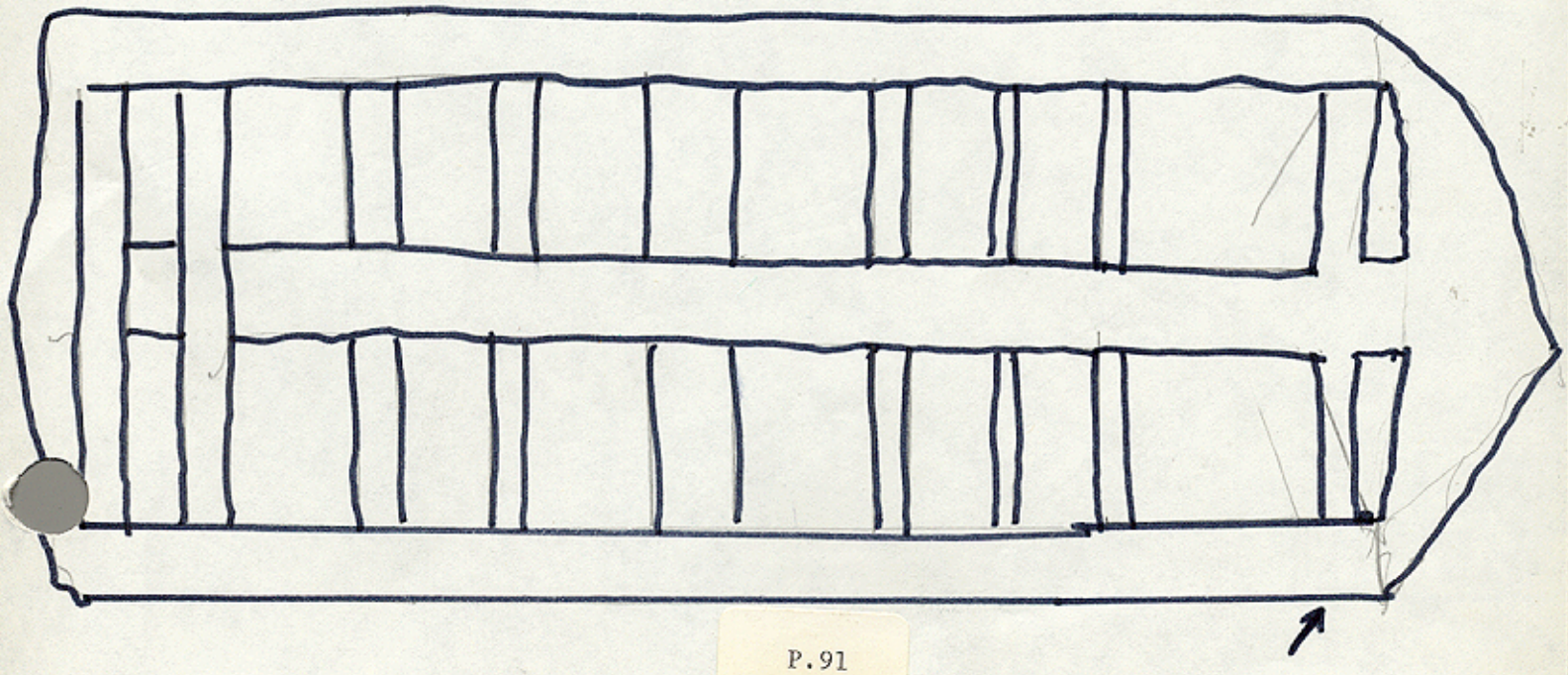
CONTACT # 3D
HE 10-12-89
FE 333 SS

63.5' LL LINE
-3.9 ~~4.5'~~ TIDE CORRECTOR
55.6 ~~59.0~~ FEET CORRECTED DEPTH

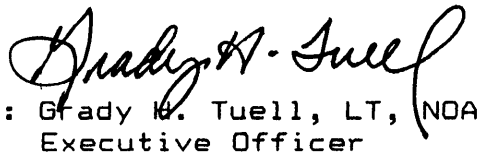
63.5' LL

Predicted MLLW
55.3 feet Observed tides MLLW (echosounder) (Poc # 1228/03)
59.5 feet Observed tides MLLW (dive) (Poc # 2002)





Submitted by: Harrie W. Bonnah, ENS, NOAA
Survey Officer
NOAA Ship HECK



Reviewed by: Grady W. Tuell, LT, NOAA
Executive Officer
NOAA Ship HECK

L. LETTER OF APPROVAL

During the period AUGUST 17, 1989, to AUGUST 24, 1989, field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and data quality. This report, field sheets, and data records have been closely reviewed and are complete and adequate for charting.

Stanley R. Iwamoto, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

HORIZONTAL CONTROL STATIONS

STAT #	NAME	LAT	LON
001	AMBROSE LT ECC	40-27-35.263	73-49-49.999
~~002~~	~~SANDY HOOK LT ECC~~	~~40-27-42.189~~	~~74-00-07.226~~
~~003~~	~~SPERMACETTI COVE C-8 CUPOLA, 1944~~	~~40-25-36.085~~	~~73-59-03.266~~
~~004~~	~~SEA CLUB 2, 1988~~	~~40-21-55.966~~	~~73-58-22.996~~
007	SHORES, 1988	40-19-42.745	73-58-27.912
009	OCCOVE, 1988	40-16-48.873	73-58-59.989
012	ASBURY TOWERS, 1988	40-13-43.310	73-59-53.482
016	BELFISH, 1988	40-11-08.351	74-00-34.846
019	GIRTY, 1988	40-08-11.868	74-01-38.854
~~022~~	~~NAVISINK LIGHT NORTH~~	~~40-23-47.640~~	~~73-59-07.034~~
~~024~~	~~SANDYHOOK LTHSE FINL~~	~~40-27-42.186~~	~~74-00-07.310~~
~~036~~	~~ROCKAWAY JETTY~~	~~40-32-25.190~~	~~73-56-26.826~~
~~037~~	~~ROMER SHOAL~~	~~40-30-46.822~~	~~74-00-48.676~~

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Pacific Marine Center
1801 Fairview Avenue East
Seattle, Washington 98102-3767

MAR 22 1989

MOP211/DJH

MEMORANDUM FOR: Captain Christian Andreasen, NOAA
Chief, Nautical Charting Division

Sigmund R. Petersen

FROM: Rear Admiral Sigmund R. Petersen, NOAA
Director, Pacific Marine Center

SUBJECT: Review of Survey H-10290 Side Scan Sonar Records

The side scan sonar records for hydrographic survey H-10290, Offshore Bradley Beach to Sea Girt, conducted by NOAA Ship WHITING from November 3, to November 23, 1988, have been reviewed as required by section 6.14.1 of the Project Instructions for OPR-C147-WH, Offshore New Jersey Coast, dated August 22, 1988. The review consisted of checking the sonargrams for additional contacts; checking the contact height and position computations; and correlating the contacts with AWOIS items, charted features and soundings from the field sheet.

The hydrographer identified 30 contacts, 16 of which were recommended for additional investigation. No additional significant contacts were identified during this review. Several of the contacts determined to be significant are separated by less than 3.3 millimeters, therefore, the number of recommended investigations was reduced during office review. Also, two contacts in depths exceeding 66 feet with object heights of less than 10 percent of the depth were deleted from the significant contact list.

The significant contacts were of three general types: 1) obvious wrecks, 2) areas that appear to be debris (called dumpsites) and 3) obstructions (these are relatively small objects with sharp shadows). The actual composition of the so-called dumpsites is not known. Sonargram images indicate a relatively indistinct feature covering areas up to 300 meters across which could consist of bedrock, spoil or debris. Additional information is required prior to prescribing a disposition method. Accordingly, it is recommended that the hydrographer dive on each dumpsite to determine its composition. If the feature is a bedrock outcrop without irregular relief, then an echosounder investigation will be adequate. If the dumpsite contains debris or other separate features resulting from dumping then a full diver investigation will be required. The wrecks and obstructions should be investigated by dives to determine least depths and to obtain descriptive information.

AWOIS Item 6825 is a charted fish haven (obstructions) with an authorized minimum depth of 50 feet centered at latitude 40°07'18"N, longitude 73°56'54"W (NAD27). Nine of the listed contacts are within this area. These include a

wreck, seven dumpsites and an obstruction. Not all the contacts are recommended for investigation for the following reasons. Several of the dumpsites are in proximity to other significant features (within 264 meters or 3.3 millimeters at the scale of chart 12326, the largest scale chart covering this area) and the obstruction has an object height less than 10 percent of the water depth. In addition, contacts with depths much greater than the 50-foot authorized depth are considered to be insignificant. Therefore, the contacts within the charted fish haven recommended for additional investigation are reduced to the following (positions based on NAD83).

CONTACT NUMBER	FEATURE	OBJECT HEIGHT	APPROX DEPTH	LATITUDE NORTH	LONGITUDE WEST
23	Dumpsite	7.3'	56'	40°08'00.9"	73°56'00.4"
30	Wreck*	13.5'	54'	40°07'44.1"	73°56'24.3"

* This wreck is south of the project limits, however, it is very significant and may be shallower than the 50-foot depth authorized for the fish haven.

The remaining significant side scan sonar contacts recommended for additional investigations are listed below (positions based on NAD83).

CONTACT NUMBER	FEATURE	OBJECT HEIGHT	APPROX DEPTH	LATITUDE NORTH	LONGITUDE WEST
16	Wreck	4.5'	64'	40°08'51.4"	73°55'49.5"
24	Wreck	6.3'	60'	40°07'59.5"	73°55'50.2"
26	Wreck**	10.5'	54'	40°11'38.4"	73°56'47.5"
12	Obstr	8.7'	74'	40°08'04.8"	73°52'56.3"
17	Obstr	14.5'	46'	40°08'40.1"	73°55'54.4"
27	Obstr	8.3'	59'	40°11'45.9"	73°56'54.9"
2	Dumpsite	6.9'	61'	40°08'41.4"	73°54'24.8"
10	Dumpsite	7.9'	70'	40°08'30.2"	73°53'12.5"

** Contact 26 appears to be AWOIS Item 1514, the wreck of the VEGA charted at latitude 40°11'39"N, longitude 73°56'49.2"W (NAD27).

Information has been received recently regarding a potential error in soundings obtained with the DSF-6000N echosounder. The error apparently originates only with certain echosounders used with the HDAPS and at this time it is not known if the faulty equipment was, in fact, used during this survey. Until the exact nature of this error is identified and quantified, users of the information contained in this report are cautioned that the depths contained in the column titled "APPROX DEPTH" may be at least six percent greater than actual depths.

A plot of the significant contacts and AWOIS items, a copy of the Side Scan Sonar Data Report, a copy of the sonargrams relevant to each significant contact and applicable excerpts from the Descriptive Report for survey H-10290 will be forwarded to the Commanding Officer, NOAA Ship HECK.

A contact plot at 1:20,000 scale and a contact list has been forwarded under separate cover to the Operations Section, CG241, for use in compiling project instructions.

Separate Cover

SSS POST-PR[illegible]SING CONTACT LIST
O[illegible]147-WH
WH-10-5-88
H-10290

ITEM #	CONTACT	EASTING	NORTHING	LATITUDE	LONGITUDE	HEIGHT ft	WATER DEPTH ft	RECOMMENDATIONS & REMAR
1	205.1p	27615.8	11070.6	40/09/58.920	73/55/09.453	3.2	61	OBSTR - NFIN
* 2	715.7s	28672.8	8681.1	40/08/41.433	73/54/24.832	6.9	72	DUMPSITE-E/S DEV OR DIVER L/D
3	701.3s	28679.9	11528.5	40/10/13.751	73/54/24.474	2.3	68	LEDGE-NFIN
4	792.45s	28822.7	7685.4	40/08/09.148	73/54/18.520	4.7	77	NFIN
5	854.7p	29104.3	8916.7	40/08/49.064	73/54/06.597	3.2	74	NFIN
6	924.5s	29103.5	8909.9	40/08/48.844	73/54/06.631	1.4	75	LEDGE-NFIN
7	996.2p	29376.6	9169.6	40/08/57.259	73/53/55.086	5.9	75	SHOAL AREA-NFIN
8	1084.4p	29532.2	9187.3	40/08/57.830	73/53/48.512	5.5	75	LEDGE-NFIN
9	1299.5s	30207.2	8564.2	40/08/37.614	73/53/20.010	5.7	86	SHOAL AREA-NFIN
* 10	1371.9p	30396.7	8336.9	40/08/30.240	73/53/12.011	9.9	80	DUMPSITE- E/S DEV OR DIVER L/D
11	1435.4p	30576.9	8005.0	40/08/19.475	73/53/04.409	3.7	76	NFIN
* 12	1513.4s	30768.6	7551.4	40/08/04.763	73/52/56.325	8.7	85	OBSTR-DIVER L/D
13	1589.7s	31243.4	7659.4	40/08/08.253	73/52/36.265	6.1	81	DUMPSITE-NFIN
* 14	2234.7s	26758.6	7553.4	40/08/04.893	73/55/45.714	6.1	67	DUMPSITE-E/S DEV OR DIVER L/D
* 15	2255.7p+s	26706.5	11428.3	40/10/10.526	73/55/47.878	4.0	76	DUMPSITE-E/S DEV OR DIVER L/D

* Contacts warranting further investigation

SSS POST-PROCESSING CONTACT LIST
OPR-C/-WH
WH-10-5-88
H-10290

ITEM #	CONTACT	EASTING	NORTHING	LATITUDE	LONGITUDE	HEIGHT ft	WATER DEPTH ft	RECOMMENDATIONS & REMARKS
* 16	2299.9p	26669.3	8987.8	40/08/51.400	73/55/49.473	4.5	72	WRECK-DIVER L/D
* 17	2315.2s	26553.4	8639.3	40/08/40.101	73/55/54.373	14.5	66	OBSTR-DIVER L/D
* 18	2304.5p	26646.8	7994.1	40/08/19.182	73/55/50.433	7.6	72	DUMPSITE-E/S DEV OR DIVER L/D
* 19	2240.3p	26684.5	8032.3	40/08/20.420	73/55/48.840	7.4	75	DUMPSITE-E/S DEV OR DIVER L/D
20	2310.2p+s	26543.1	7516.7	40/08/03.704	73/55/54.817	0.0	70	DUMPSITE-NFIN
* 21	2310.1p	26505.5	7488.5	40/08/02.790	73/55/56.406	6.6	69	DUMPSITE-E/S DEV OR DIVER L/D
22	2374.9p+s	26458.3	7466.4	40/08/02.074	73/55/58.400	5.5	69	DUMPSITE-NFIN
* 23	2385.4s	26409.8	7428.8	40/08/00.855	73/56/00.449	7.3	68	DUMPSITE-E/S DEV OR DIVER L/D
* 24	2378.4p	26653.6	7385.8	40/07/59.460	73/55/50.151	6.3	76	WRECK-DIVER L/D
25	2503.8s	26103.9	12482.6	40/10/44.712	73/56/13.339	3.7	67	OBSTR-NFIN
* 26	2904.9s	25295.8	14139.6	40/11/38.437	73/56/47.494	10.5	70	WRECK-DIVER L/D
* 27	2974.5s	25119.6	14368.6	40/11/45.862	73/56/54.943	8.3	68	OBSTR-DIVER L/D
28	3596.8p	24404.0	13611.0	40/11/21.298	73/57/25.196	4.8	74	OBSTR-NFIN
* 29	3751.2s	25854.9	7255.5	40/07/53.890	73/56/20.662	3.1	70	OBSTR-DIVER L/D
* 30	3745.1p	25820.3	6870.4	40/07/44.080	73/56/24.351	13.5	70	WRECK-DIVER L/D

* Contacts warranting further investigation

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: NOVEMBER 1, 1989

MARINE CENTER: Pacific

OPR: C147-HE-89

HYDROGRAPHIC SHEET: FE-333-SS

LOCALITY: Atlantic Ocean, offshore Bradley Beach to Sea Grit, New Jersey

TIME PERIOD: August 17 to August 24, 1989

TIDE STATION USED: 853-1680 Sandy Hook, N.J.

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 2.27 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 4.9 ft.

REMARKS: RECOMMENDED ZONING - apply a x0.95 range ratio to all heights, and a -0 hr. and 40 min. time correction for Sandy Hook.

James R. Hubbard

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SURVEY NUMBER

FE-333

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 12324 12326	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO SEA GIRT										
ATLANTIC OCEAN (TITLE)	X X									1
BRADLEY BEACH (TITLE)	X X									2
NEW JERSEY (TITLE)	X X									3
SEA GIRT (TITLE)	X X									4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
										17
				Charles E. Harrington						18
				Chief Geographer			N/CG 2x5			19
				DEC 5 1989						20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 77-27(H)
(9-83)

U.S. DEPARTMENT OF COMMERCE

HYDROGRAPHIC SURVEY STATISTICS

REGISTRY NUMBER
FE-333SS

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET (in D.R.)	4	SMOOTH OVERLAYS: POS., ARC, EXCESS	w/Depth Records
DESCRIPTIVE REPORT	1	FIELD SHEETS AND OTHER OVERLAYS	11

DESCRIPTION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR-GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS	
ACCORDION FILES	1		w/Depth Records			
ENVELOPES						
VOLUMES						
CAHIERS						
BOXES						

SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	*EVALUATION*	*TOTALS*
POSITIONS ON SHEET			116
POSITIONS REVISED		6	6
SOUNDINGS REVISED		26	26
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	*EVALUATION*	*TOTALS*
PRE-PROCESSING EXAMINATION	-		
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	5		5
VERIFICATION OF SOUNDINGS	47		47
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	14		14
COMPARISON WITH PRIOR SURVEYS AND CHARTS		14	14
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		58	58
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS TOTALS	66	72	138

Pre-processing Examination by D.J. Hill	*Beginning Date*	*Ending Date* 12/19/89
Verification of Field Data by J.S. Green	*Time (Hours)* 66	*Ending Date* 01/24/90
Verification Check by C.R. Davies	*Time (Hours)* 4	*Ending Date* 02/13/90
Evaluation and Analysis by J.S. Green	*Time (Hours)* 72	*Ending Date* 03/28/90
Inspection by D.J. Hill	*Time (Hours)* 4	*Ending Date* 5/8/90

EVALUATION REPORT

FE-333SS

1. INTRODUCTION

Survey FE-333SS is a field examination accomplished by the NOAA Ship HECK according to Project Instructions OPR-C147-HE, Offshore New Jersey Coast, New Jersey, dated June 20, 1989.

The purpose of this field examination was to investigate and resolve side scan sonar contacts identified by the NOAA Ship WHITING during basic hydrographic survey H-10290 in November 1988. Ten items were identified for investigation by N/MOP letter, Review of Survey H-10290 Side Scan Sonar Records, March 22, 1989 (copy attached). The NOAA Ship HECK used side scan sonar to locate and more accurately position the previous contacts, which were then resolved by dive investigation or by conventional echo sounding development. The results of these investigations are depicted on four page sized graphics attached to this report.

The surveyed area is centered approximately five miles off the New Jersey coast and extends from Bradley Beach to Sea Girt. The surveyed area extends from latitude 40°07'42"N north to latitude 40°11'51"N and longitude 73°52'49"W west to longitude 73°57'02"W. This offshore area may be characterized as flat and featureless, with a predominantly sand bottom and depths ranging from 41 to 86 feet. The items for investigation are wrecks, rocks and other debris dumped in the surveyed area and other unknown obstructions.

Predicted tides for Sandy Hook, New Jersey, zoned for the project area, were used for the reduction of soundings during field processing. Approved hourly heights zoned from Sandy Hook, New Jersey, gage 853-1680, were used during office processing.

The field sheet parameters have been revised to plot the survey data on one sheet on the Pacific Hydrographic Section's Xynetics plotter and to change the projection to polyconic. The TRA and sound velocity correctors were adequate. An accompanying computer printout contains the parameters and the correctors. The electronic correctors were applied on-line during the data acquisition, since this is an HDAPS survey, and are adequate.

The hydrographer's report is not in the format specified in the Hydrographic Manual, but in a format agreed to by personnel from the NOAA Ship HECK and the Atlantic Hydrographic Section.

A digital file has been generated for this survey as required by N/CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983.

2. CONTROL AND SHORELINE

Section H of the hydrographer's report contains an adequate discussion of horizontal control and hydrographic positioning.

Positions of horizontal control stations used during hydrography are published and 1988 field values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined by N/CG121 for survey H-10290. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude:	0.410 seconds	(12.6 meters)
Longitude:	-1.504 seconds	(-35.6 meters)

There are no weak fixes noted in this survey.

There are no shoreline maps applicable to this survey.

3. HYDROGRAPHY

Hydrography is adequate to determine least depths and to resolve the ten items investigated. The data acquired during these investigations, when used in conjuction with survey H-10290, is adequate to delineate to bottom configuration and to furthur define the depth curves.

4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3, the Hydrographic Survey Guidelines and the Field Procedures Manual, except:

The hydrograper did not make a comparision with survey FE-221WD (1978-79) as required by section 7.8 of the project instructions.

5. JUNCTIONS

Junctions were not required by the project instructions.

6. COMPARISON WITH PRIOR SURVEYS

H-10290 (1988) 1:10000
FE-221WD (1978-79) 1:40000

Survey H-10290 covers the entire area of the present survey. FE-221WD was compared to H-10290 during the evaluation of that survey and all features within the limits of survey H-10290 superseded, except for a wreck covered 53 feet at MLLW (AWOIS Item 1514) charted at latitude 40°11'39"N, longitude 73°56'49"W (NAD 27). This wreck covered 53 feet at MLLW (a dive depth) was brought forward from FE-221WD to H-10290.

Each of the ten investigations that make up this survey is discussed adequately in the contact investigation reports contained in section K of the hydrographer's report, supplemented as follows.

Contact 24, an obstruction (wreck) covered 61 feet at MLLW on survey H-10290 at latitude 40°07'59"N, longitude 73°55'50"W originating from the side scan sonar offsets, was found 135 meters to southwest. The other nine investigations in this field examination resulted in positions averaging 10.4 meters from the H-10290 side scan sonar contact positions. This new position is confirmed by two other echo sounder contacts, the similarity of the side scan sonar images and the absence of a side scan sonar image at the prior position. This wreck has either moved or there is a discrepancy in the position shown on H-10290. Refer to section K of the hydrographer's report for the disposition of this item.

Contact 30, an obstruction (wreck) covered 54 feet at MLLW on survey H-10290 at latitude 40°07'44.08"N, longitude 73°56'24.35"W originating from the side scan sonar offsets, was found with a minimum echosounder depth 4.2 feet shallower than the dive depth. The minimum echosounder depth is confirmed by an additional good echosounder contact also shallower than the dive depth. Therefore, the minimum echosounder depth of 55.3 feet was selected over the dive depth of 59.5 feet. See section K (Contact 30) of the hydrographer's report and section 7.b of this report (AWOIS Item 6825) for additional discussion of this feature.

AWOIS Item 1514 originates from FE-221WD (1978-79) as the wreck of the ferry VEGA covered 53 feet at latitude 40°11'39"N, longitude 73°56'49"W (NAD 27). This item has been investigated during this survey as Contact 26. Refer to section K of the hydrographer's report for the discussion and disposition of this item.

Survey FE-333SS is adequate to supersede the prior survey H-10290 for the ten items investigated and the sunken wreck covered 53 feet at MLLW from survey FE-221WD. The soundings acquired during

these investigations are adequate to supplement survey H-10290 in the delineation of the bottom configuration and if required for larger scale charting of this area.

7. COMPARISON WITH CHART

Chart 12323, 20th Edition, dated April 16, 1983; scale 1:80000
Chart 12324. 24th Edition, dated November 15, 1986; scale 1:40000
Chart 12326, 38th Edition, dated February 22, 1986; scale 1:80000

a. Hydrography

Most charted hydrography originates with surveys H-6190, FE-221WD and from miscellaneous sources not readily ascertainable. Except for a charted sunken wreck (AWOIS Item 1514) at latitude 40°11'39"N, longitude 73°56'49"W (NAD 27), which has been brought forward from survey FE-221WD, all presently charted hydrography has been superseded by survey H-10290.

Except for the three features located within the charted fish haven (see AWOIS Item 6825), survey FE-333SS is adequate to supersede charted information for the features investigated during this survey.

b. AWOIS

AWOIS Item 1498 is a sunken wreck shown on chart 12326 at latitude 40°08'00"N, longitude 73°53'00"W (NAD 27). This wreck is located 140 meters southwest of the feature investigated as Contact 12. The investigation of Contact 12 included the charted position of this wreck. This wreck was not specifically searched for nor was any indication of it found in the data acquired in the investigation of Contact 12. The sunken wreck symbol should remain as charted until this feature can be resolved by the additional investigation recommended in the evaluator's report for survey H-10290. The 74-foot sounding found in the investigation of Contact 12 is in proximity of this sunken wreck and may be charted at the discretion of the chart compiler.

AWOIS Item 6825 is a fish haven shown on chart 12326 centered at latitude 40°07'18"N, longitude 73°56'54"W (NAD 27) with an authorized minimum depth of 50 feet. Contacts 23, 24 and 30 are located within the charted fish haven. The minimum depths found during the investigation of these features are all deeper than the authorized 50 feet. Two of these features, however, are very significant wrecks (Contacts 24 and 30). The fish haven should remain as charted. Refer to section K of the hydrographer's report and section 6 of this report for additional discussion of the three contacts investigated within the limits of the charted fish haven.

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

There are no aids to navigation applicable to this survey.

e. Geographic Names

Names appearing in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

No reports of dangers to navigation were generated during the survey or office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey FE-333SS adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

This is a good hydrographic survey. No additional field work is recommended.

James S. Green
Supervisory Cartographer

This survey has been examined and it meets Charting and Geodetic Services' standards and requirements for use in nautical charting. Approval is recommended.

Dennis Hill
Chief, Hydrographic Unit

APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey FE-333SS. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

5-8-90

For Commander Pamela Chelgren-Koterba, NOAA (Date)
Chief, Pacific Hydrographic Section

Not required per HSG No. 70

Approved: 5-15-90

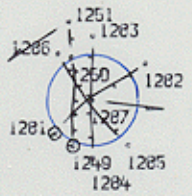
RADM Ray E. Moses, NOAA (Date)
Director, Atlantic Marine Center

Approved: 5-17-90

RADM Wesley V. Hull, NOAA (Date)
Director, Charting and Geodetic Services

73°55'00"

73°54'30"



73°54'30"

40°08'30"

NAD 27

40°08'30"

CRD 1/23/90
JSG ✓

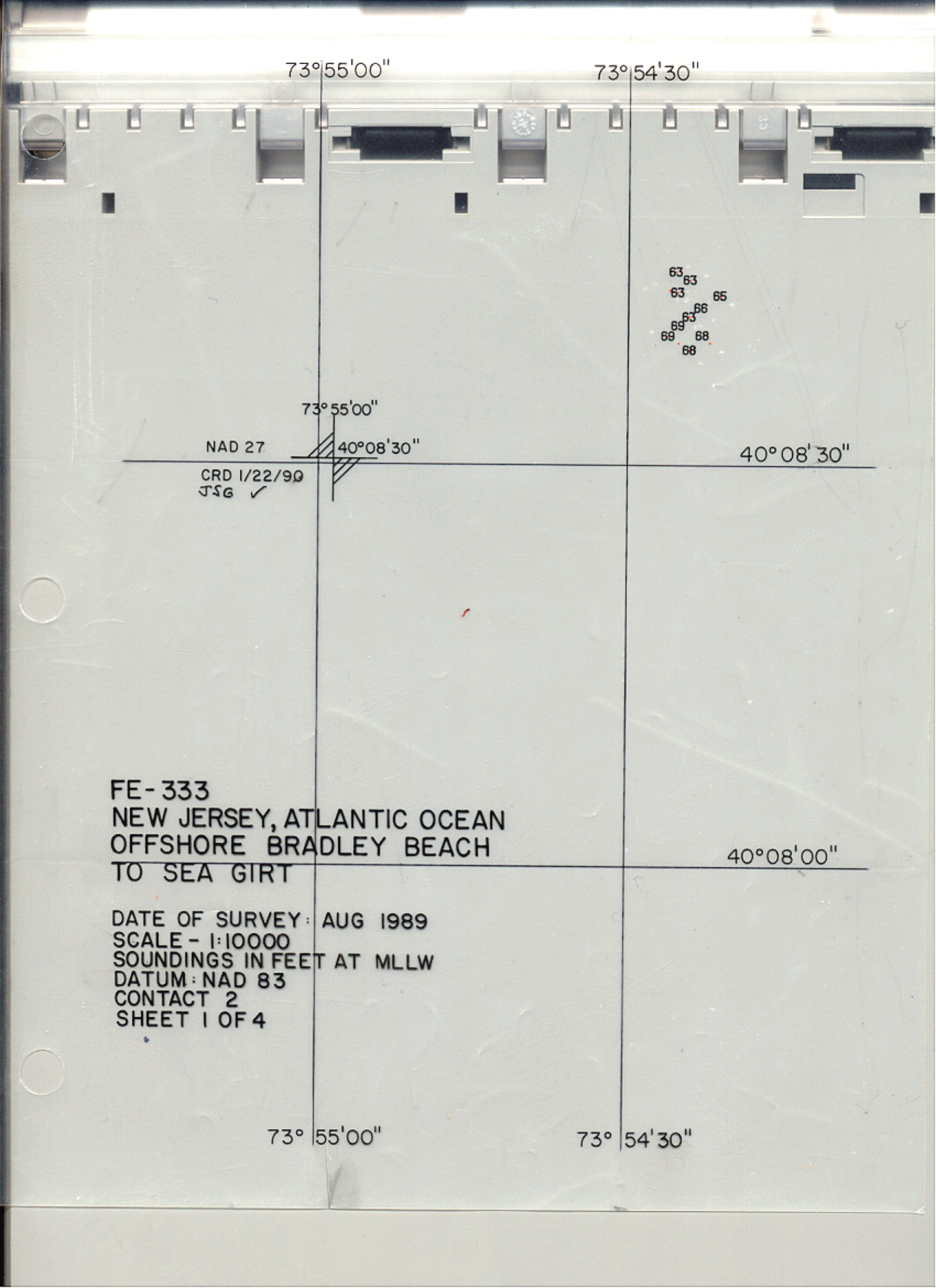
FE-333
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT

40°08'00"

POSITION OVERLAY A
CONTACT 2
SHEET 1 OF 4

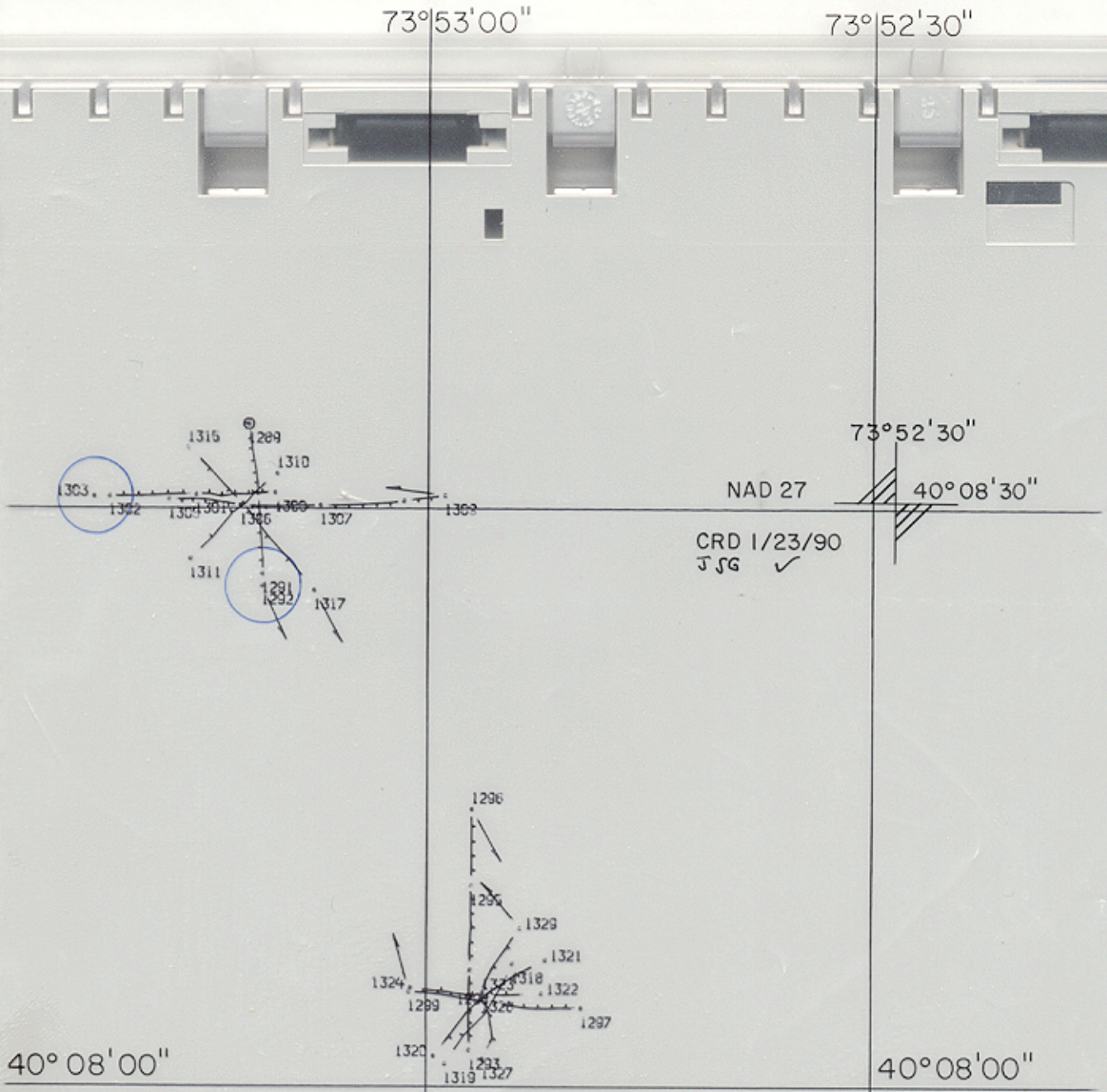
73°55'00"

73°54'30"



FE-333
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT

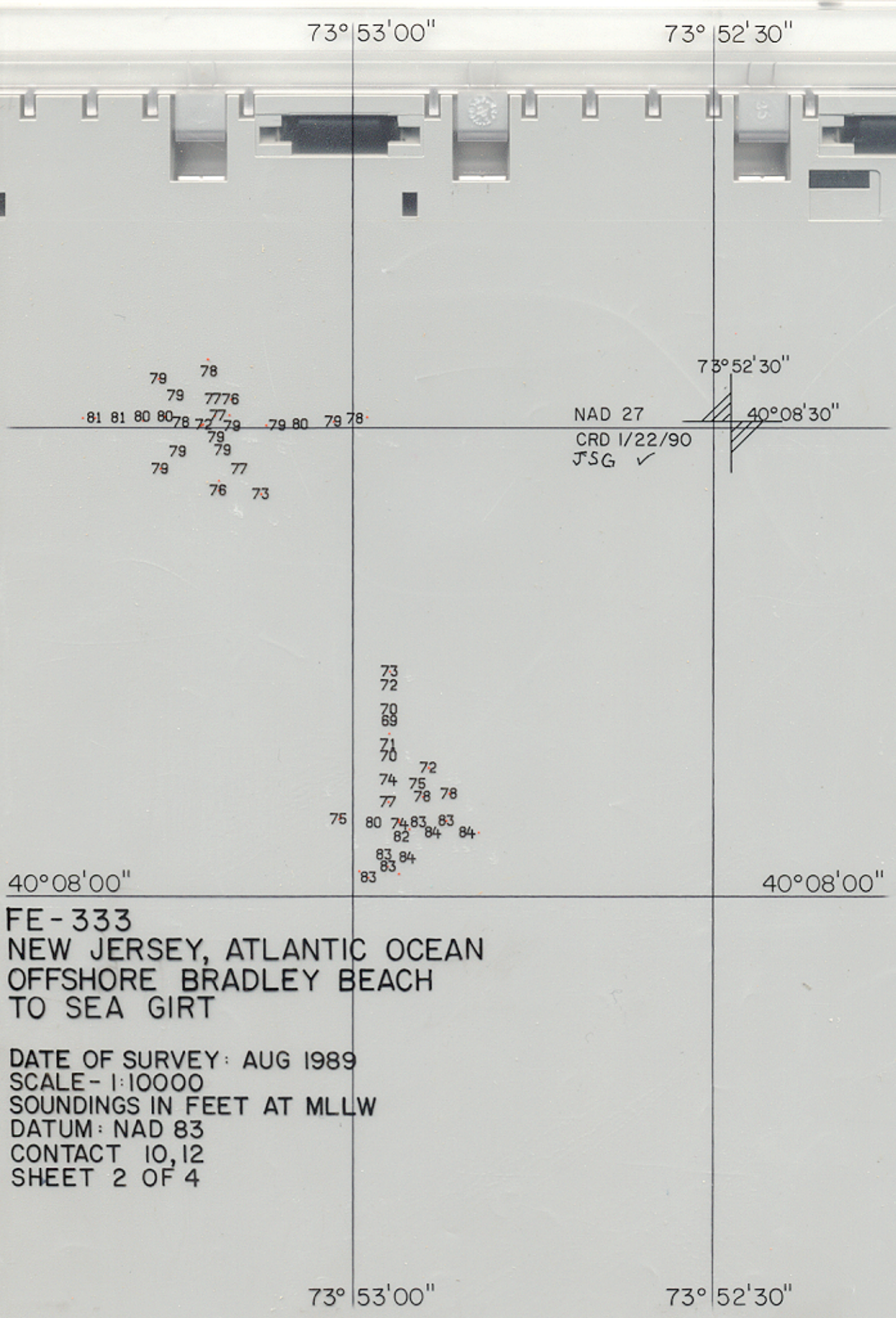
DATE OF SURVEY: AUG 1989
SCALE - 1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 2
SHEET 1 OF 4



FE-333

NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO SEA GIRT

POSITION OVERLAY A
CONTACT 10,12
SHEET 2 OF 4



FE-333
NEW JERSEY, ATLANTIC OCEAN OFFSHORE BRADLEY BEACH TO SEA GIRT

DATE OF SURVEY: AUG 1989
SCALE - 1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 10, 12
SHEET 2 OF 4

FE-333

NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT

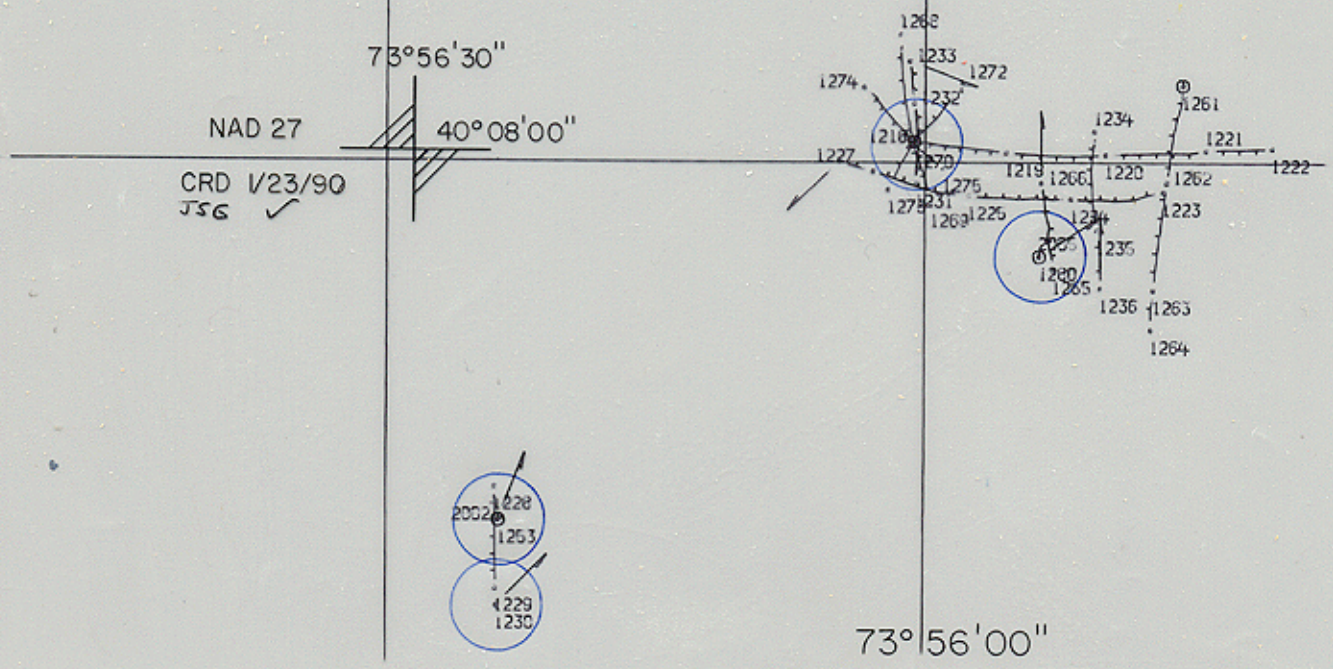
POSITION OVERLAY A
CONTACT 16,17,23,24,30
SHEET 3 OF 4

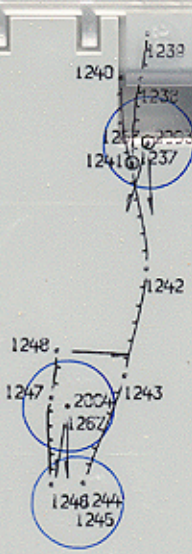
73°56'30"

73°56'00"

40°08'30"

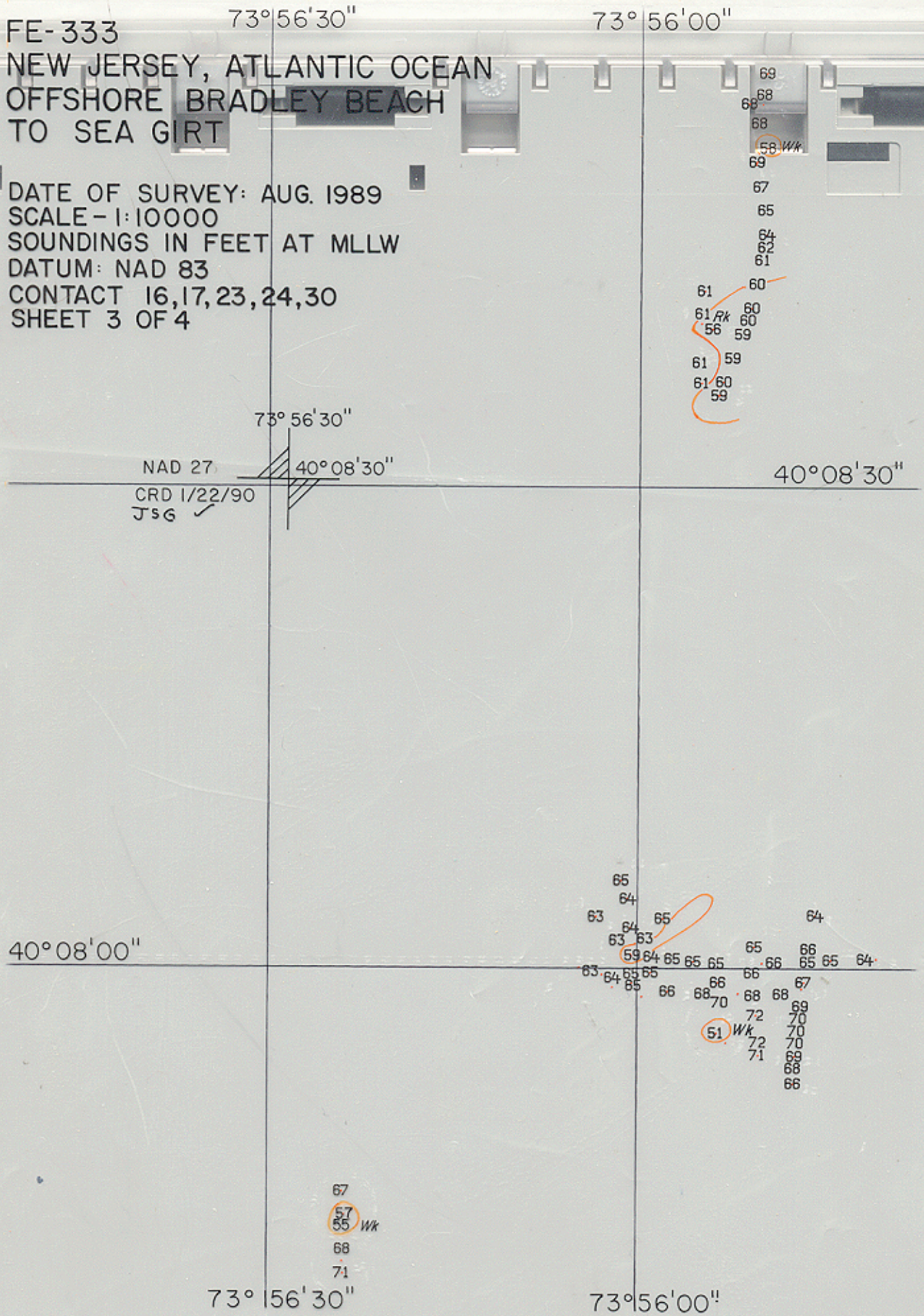
40°08'30"





FE-333
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT

DATE OF SURVEY: AUG. 1989
SCALE - 1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 16,17,23,24,30
SHEET 3 OF 4



73° 57′ 00″ 73° 56′ 30″

40° 12′ 30″

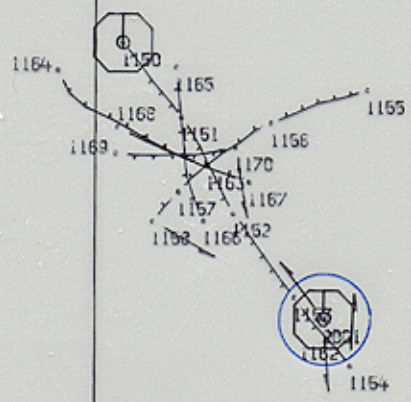
FE-333
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT

POSITION OVERLAY A
CONTACT 26, 27
SHEET 4 OF 4

73°56'30"

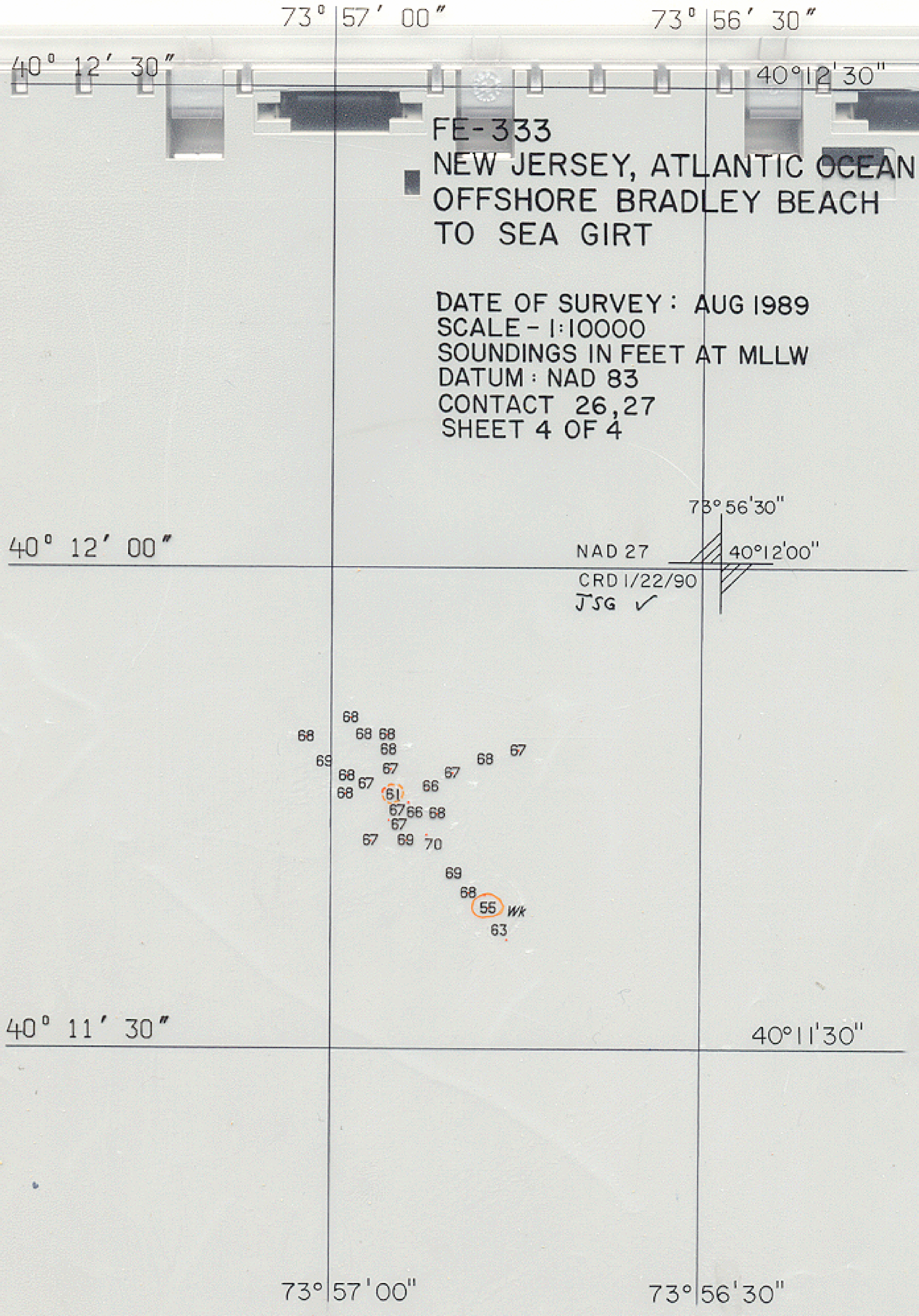
40° 12′ 00″ NAD 27 40°12'00"

CRD 1/23/90
JSG ✓



40° 11′ 30″ 40°11'30"

73°57'00" 73°56'30"


FE-333
NEW JERSEY, ATLANTIC OCEAN
OFFSHORE BRADLEY BEACH
TO SEA GIRT
DATE OF SURVEY: AUG 1989
SCALE - 1:10000
SOUNDINGS IN FEET AT MLLW
DATUM: NAD 83
CONTACT 26,27
SHEET 4 OF 4
73° 57' 00"
73° 56' 30"
40° 12' 30"
40°12'30"
40° 12' 00"
40° 11' 30"
40°11'30"
73°56'30"
NAD 27
40°12'00"
CRD 1/22/90
JSG ✓
68
68
68 68
68
69
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67 66 68
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67 69 70
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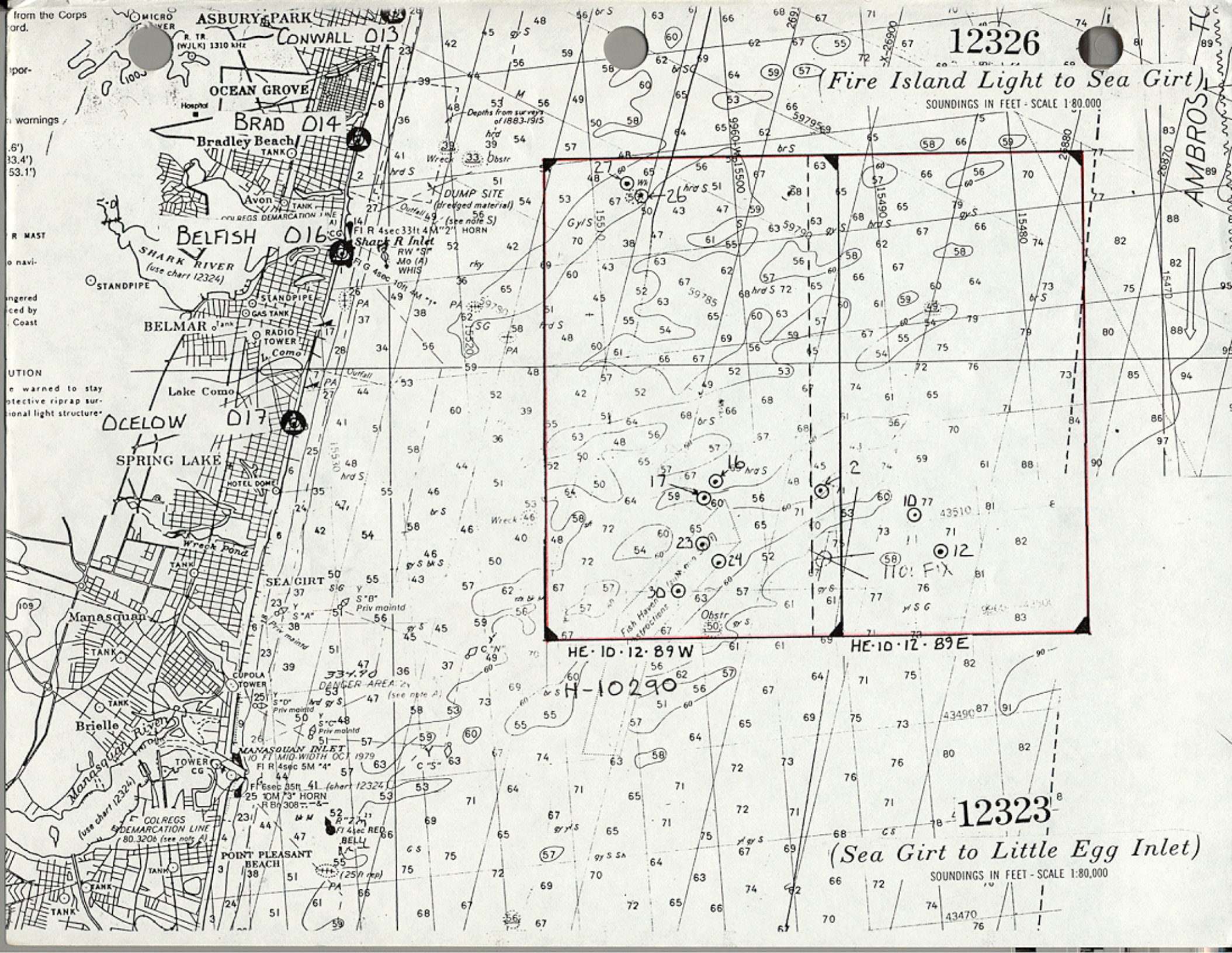
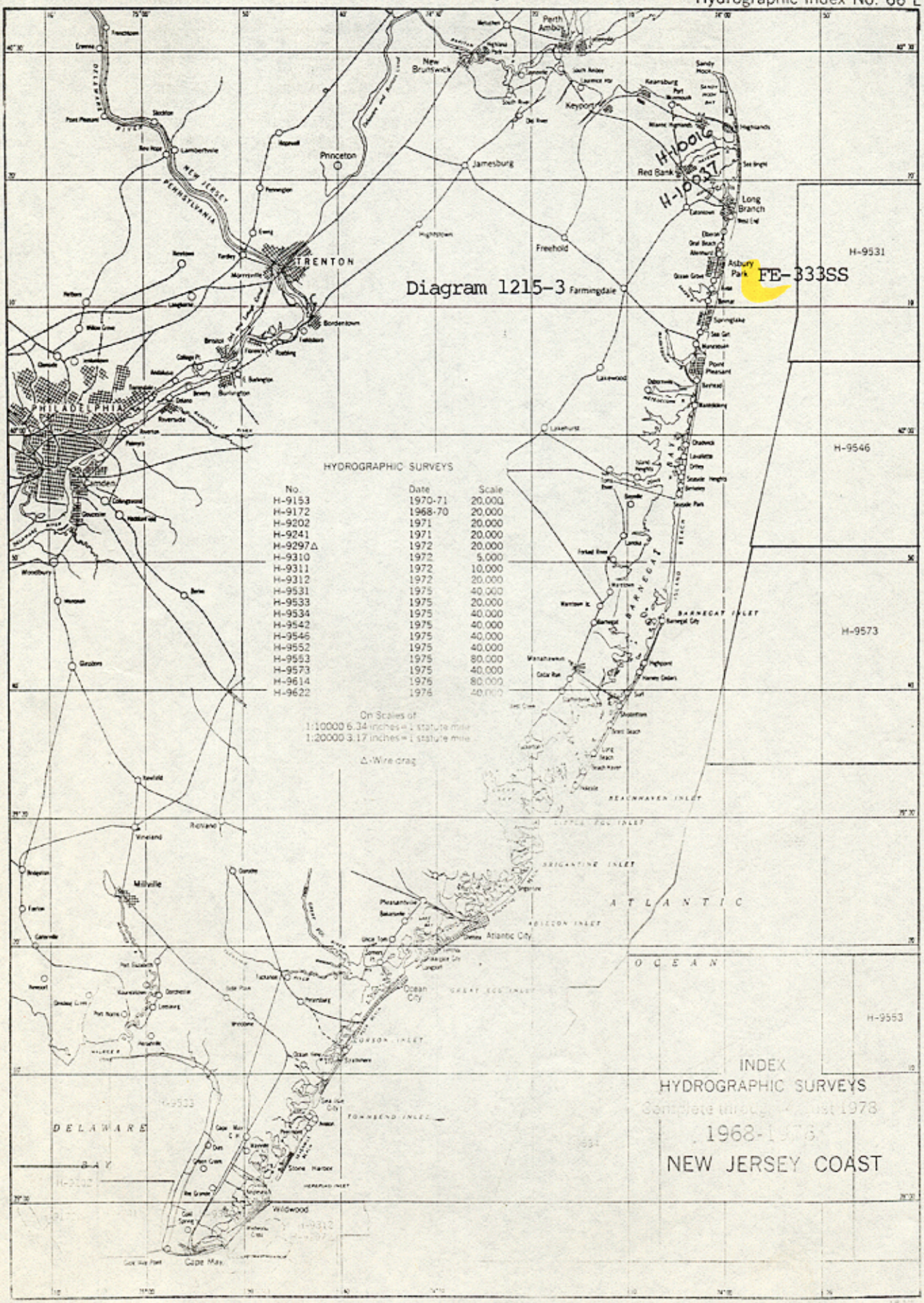
68
55 Wk
63
73°57'00"
73°56'30"


12326
(Fire Island Light to Sea Girt)
SOUNDINGS IN FEET - SCALE 1:80,000
ASBURY PARK
CONWALL 013
OCEAN GROVE
BRAD 014
Bradley Beach
BELFISH 016
SHARK RIVER
(use chart 12324)
BELMAR
Lake Como
OCELOW 017
SPRING LAKE
Wreck Pond
SEA GIRT
Manasquan
Brielle
Manasquan River
MANASQUAN INLET
(use chart 12324)
COLREGS DEMARCATION LINE
80.320b (see note A)
POINT PLEASANT BEACH
DUMP SITE
(dredged material)
(see note S)
Depths from surveys of 1883-1915
DANGER AREA
(see note A)
HE·10·12·89W
HE·10·12·89E
H-10290
12323
(Sea Girt to Little Egg Inlet)
SOUNDINGS IN FEET - SCALE 1:80,000
AMBROSE TO

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 66 L



NOAA FORM 75-96
(10-83)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE - 333 SS

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12324	5/11/90	ALMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via critical soundings
			Drawing No. applied.
12323	3/29/90	Stanley Obst	Full ~~Part Before~~ After Marine Center Approval Signed Via critical soundings
			Drawing No. applied.
12326	5/10/90	ALMACEN	Full ~~Part Before~~ After Marine Center Approval Signed Via critical soundings
			Drawing No. applied.
12300	3-8-91	K.R. Foster	
			Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 55
13003	3-15-91	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 62
			Examined, no corrections applied at this scale
			Full ~~Part Before~~ After Marine Center Approval Signed Via
~~13003~~	~~3-13-91~~	~~John Barber~~	Drawing No. ~~48~~
			~~Examined, no corrections.~~
13006	3-13-91	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 48
			Examined, no corrections ~~App'd~~ at this scale.
12300	7/30/93	L. Ackerman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. #49, Then cht 12300
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED